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ABSTRACT

A guide to survey research is presented for both novice and experienced researchers. Steps of the survey research process are covered: (1) planning the survey to determine the purpose of the study, collecting background information, designing the sample, and making a time line for completing the project; (2) questionnaire design, including the pros and cons of various question formats; (3) questionnaire development, including concepts such as maximizing response rate and establishing validity and reliability; (4) details of conducting a survey such as preparing a cover letter, pilot testing, and making followup mailings; (5) preparing the returned survey for data processing (editing and coding); (6) choosing the most appropriate statistical analysis for the data; and (7) reporting survey results. A question and answer format and an informal style have been used in the guide. Appendices provide: a sample time line for a survey research project, examples of questionnaires, and an example of a cover letter. (SW)

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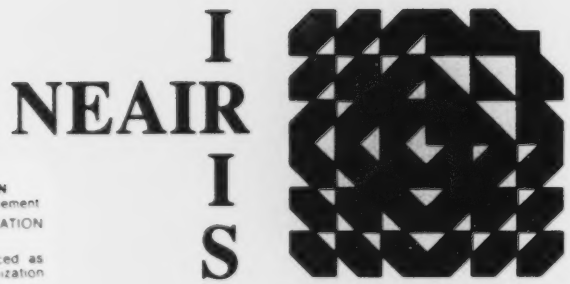
Survey Research

What Works for the Institutional Researcher

Linda A. Suskie



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North East Association for Institutional Research
Institutional Research Information Series
No. 1

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SURVEY RESEARCH
WHAT WORKS FOR THE INSTITUTIONAL RESEARCHER

LINDA A. SUSKIE
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NORTH EAST ASSOCIATION FOR INSTITUTIONAL RESEARCH
INSTITUTIONAL RESEARCH INFORMATION SERIES
NO. 1

THE DEAN'S JOB NEED NOT BE DULL AND BORING
I KNOW WHAT I'LL DO TODAY! I'LL DRAW UP A NEW QUESTIONNAIRE AND HAVE ALL THE FACULTY MEMBERS FILL IT OUT!
VS Hixson

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PREFACE

This monograph is designed for institutional researchers and others interested in research in higher education. It has two purposes: first, to provide the novice with a guide to the basic steps of survey research, and, second, to provide the more experienced researcher with a useful reference tool.

This monograph grew from my interest in survey research in general and questionnaire design in particular. Many of the principles learned in my graduate studies in educational testing and measurement can be applied to questionnaire design. After finding myself repeatedly answering the same questions from colleagues on survey research, I wrote a short manual. The manual grew into a series of workshops I have presented around the country for the Association for Institutional Research and the North East Association for Institutional Research. Those workshops, in turn, inspired this monograph.

This monograph has been written in an informal style to keep it readable and interesting. A question and answer format has been used throughout to help you focus quickly on the point of the discussion and use this monograph as a reference. Rather than use citations, I admit freely to borrowing the thoughts and findings of many; they are listed in the bibliography at the end.

The monograph has been organized in a roughly chronological fashion to take you step-by-step through the survey research process. Chapter I discusses planning the survey: determining the purpose of the study, collecting background information, designing the sample, and making a time line for completing the project. Chapter II introduces questionnaire design by discussing the pros and cons of various question formats. Chapter III is the central chapter of the monograph. It examines developing the questionnaire itself, and it is here that such important concepts as maximizing response rate and establishing validity and reliability are introduced.

Chapters IV through V deal more with the mechanics of conducting a survey. Chapter IV addresses such essential details as preparing a cover letter, pilot testing, and making follow-up mailings. Chapter V deals with preparing the returned surveys for data processing: editing and coding.

Chapters VI and VII discuss analyzing and reporting your findings. Chapter VI is an attempt to cover several semesters' course work in statistics in a few pages that serve as a guide to choosing the most appropriate statistical

analysis for your data and your needs. Those readers with some background in inferential statistics who need an easy reference guide should find it of value. Chapter VII discusses reporting the survey results.

Although it might be tempting to read this monograph "as you go", it is strongly recommended that you go through the entire monograph and not just Chapter I as you plan your survey. Subsequent chapters will raise additional questions and ideas that will likely influence your plans.

Deep gratitude is expressed to Sidney Micek, who conceived of this monograph and proposed the outline and format, editor Jennifer Presley for her assistance, Gary Reighard for his helpful comments on earlier drafts, my husband Steve for his support and suggestions throughout this project, and the many institutional researchers around the country who have attended my workshops on questionnaire design, discussed their ideas and concerns, and shared examples of questionnaires with me.

Chapter I.

PLANNING THE SURVEY

Any good survey is a major research project, involving considerable time and resources. To make sure your efforts pay off, it's crucial that you spend some time planning. A survey that doesn't provide needed information or delivers it too late to have an impact is a tremendous waste. This chapter will help you delineate the survey's objectives, make some basic data collection and analysis decisions including selecting a sample, and set deadlines so everything gets done in time.

WHAT ARE THE OBJECTIVES OF YOUR SURVEY?

State the objectives of your survey as specifically as possible. It's not enough to say you want to investigate student opinions on alcohol consumption. Refine the problem.

Put your objectives in writing. If they're written down, they'll be clearer, easier to explain to others, and easier to keep in mind as you plan the survey.

HOW WILL THE RESULTS BE USED?

What decisions are to be made from the survey results? Surveys are not ends unto themselves. They are tools that are used to help make decisions. You wouldn't buy tools for a workbench unless you knew what you would use them for and unless you knew for sure that you were going to use them. Similarly, you shouldn't conduct a survey unless you know what decisions the survey data will be needed for and unless you are convinced that you really need survey data to help make those decisions. Talk to the people who requested the survey and to anyone else who might use the results.

Sometimes, of course, a survey is needed for general background information and not to contribute to specific decisions. A periodic profile of the student body's goals and plans, for example, is helpful to the college administration and faculty in a wide range of contexts and not just for one or two specific decisions. In this case, you should still understand why there is a perceived need for the survey information and what uses will be made of the survey results. Will it be worth the time and resources spent collecting the information?

WHAT ARE THE CRITICAL QUESTIONS TO BE ANSWERED?

You may find that to meet all the objectives on your list, you'll have to ask dozens or hundreds of questions. You'll have to drop some objectives from your list just to keep things from getting too complicated. Talk again to the people who will be using the survey results. Find out what the most crucial decisions or objectives are. What are the essential points that people want to find out no matter what? Why are they critical?

WHAT CONCEPTS NEED TO BE DEFINED?

To make sure your survey provides the information needed, some of the concepts used will doubtless need clarification. Terms such as "attrition," "non-traditional student," "degree-seeking," "teaching effectiveness," and even "satisfaction" and "quality" are full of ambiguities. If these types of concepts are applicable to your study, define them to everyone's satisfaction <u>now</u>, before the study gets underway.

WHAT HAVE OTHERS DONE ON THIS TOPIC?

Depending on the nature of the problem you are studying, a review of relevant literature and published survey instruments could be a considerable time-saver. Why reinvent the wheel when you can take advantage of what others have done before you? If the problem you're studying is student attrition, for example, a review of what others have found should help you hone in quickly on factors you should be examining. A review of surveys others have done on your subject will give you ideas on questions to ask and how to ask them. Try asking fellow institutional researchers at other colleges if you can adapt their questionnaires for your purposes rather than write your own from scratch.

DO YOU REALLY NEED A SURVEY?

Ask yourself critically if you <u>really</u> need a survey to get the information you need. Perhaps the review of what others have done will suffice. Will your survey likely yield the same results that others have found? If so, is it worth the time and expense to conduct your own survey? Would a few phone calls or interviews give you all you need? If all you need is factual data, are you sure it isn't available from another source such as student records, tests, or direct observation? At the very least, can demographic information be obtained elsewhere?

WHAT INFORMATION DO YOU NEED TO ANSWER THE QUESTIONS?

The next step is to write a list of the specific information--facts, figures, and opinions--that you will need to find out to meet your objectives. Then ask yourself how each piece of information will contribute to your objectives. Be particularly critical of demographic information such as information on sex, age, racial or ethnic group, and marital status. Is it really important, for example, that you find out the sex of your respondents? Think about how you will use this information. Since men and women must be treated alike in many situations, your findings may be of no use and little interest to anyone.

HOW WILL YOU ANALYZE AND REPORT THE DATA?

What will you do with the information after you get it? Some constraints may be placed on your study depending on its purpose, computer availability, and the statistical sophistication of your users.

Is the purpose of your study to describe or explain? Many surveys are conducted simply to describe a group of people. Alumni surveys, for example, are often conducted to describe the alumni: their occupations, incomes, further education, residence, etc. Other surveys, however, are done to explain, predict, or explore. Why do some admitted freshmen choose not to enroll at your school? What types of students are most likely to drop out? What factors contribute to alumni career paths?

If your purpose is only to describe responses by summarizing them into totals and percents, the information you collect can be in almost any form. If you are not planning on a large number of responses, these simple tallies may be made by hand without the help of a computer. Larger surveys may be summarized on a personal computer.

If you plan to explain, predict, or explore, however, you will probably need complicated statistical analyses such as factor analysis, regression analysis, or analysis of variance. These analyses require (1) knowledge of statistics either by you or by someone available to advise you, (2) a statistical software package such as SAS or SPSS and computer facilities large enough to handle it, and (3) data in a proper format. There are four basic data formats or "scales":

Categorical or nominal data breaks people into categories. Examples of categorical data include racial/ethnic group, marital status, major, and responses to many multiple

choice questions. Categorical data cannot be ranked and means or medians cannot be calculated. They are difficult to use in statistical analyses designed to explain, predict, or explore. You should therefore avoid collecting this type of data if you want to do more than describe.

Ranked or ordered data may be collected from questions asking for an "excellent/good/fair/poor" rating or similar ratings. Medians can be calculated but not means. This type of data can be analyzed using non-parametric statistical analyses or sufficiently robust parametric statistical analyses. It therefore can be used to a limited extent to explain, predict, or explore.

Scaled or interval data can be converted into meaningful numbers, where the difference between, say, a 1 and 2 is the same as the difference between a 4 and 5. Means can be calculated, and the data can be analyzed using a wide variety of powerful parametric statistical techniques. If you would like to use a fairly complex statistical analysis with your data, you should try to make it interval.

Bivariate or dichotomous data are data that have only two possible values (e.g., sex, full-time/part-time status). Although they are technically categorical data, because there are only two values they can be treated as interval data. Categorical and ordered data can often be grouped into bivariate categories and then introduced into a parametric statistical analysis.

A final question to consider is who will use your findings. Unsophisticated users may not be able to understand or appreciate a factor analysis, even if you determine that it would best meet their needs. Simple tallies may be all your users want.

WHOM WILL YOU SURVEY?

Your next step in planning your survey is to identify the group you want to survey. While this may seem a simplistic question, it requires careful thought. Suppose you are planning a survey of alumni. Do you want to include people who are in your school's alumni files but never completed a degree from your school? Do you want to include those who earned only a graduate degree from your school? Do you want to survey all alumni or just those of, say, the last five years? Suppose you are planning a survey of the student body on possible attrition causes. Do you want to survey all currently enrolled students or just undergraduates? Or just full-time undergraduates? Or just full-time degree-seeking undergraduates? Or just full-time degree-seeking undergraduates who live on campus?

This is also an important question because the type of people you survey will affect the kinds of information you can ask for. You cannot expect people with eighth grade educations, for example, to give you sophisticated opinions on complex economic issues. Teenagers will, by lack of experience, be uninformed on many consumer problems like credit and budgeting.

DO YOU NEED A SAMPLE OR A CENSUS?

Most surveys in higher education involving contacting a sample or subgroup rather than making a census or survey of everyone. The major reason for this is cost effectiveness. Contacting a smaller group will save postage, printing, and data processing costs as well as time in assembling mailings and editing and coding the results. If the sample is carefully chosen and sufficiently large, these savings come with little sacrifice in terms of statistical accuracy.

It's also worth pointing out that a true census with a response from everyone is almost impossible to obtain. There will always be people with incorrect addresses and people who just plain refuse to cooperate. So attempting a census will likely bring only a sample of responses, albeit a fairly large one.

There are two instances you might attempt to contact everyone rather than take a sample. The first is if your entire group is relatively small. If your entire student body is only 450 students or if you have only 150 computer science alumni, go ahead and survey them all. The second instance is if your survey is on a critical subject and someone influential might try to disparage the results because they are from "only" a sample.

HOW MANY PEOPLE SHOULD YOU SURVEY?

The number of people you survey depends on the amount of "sample error" you're willing to put up with. "Sample error" describes the possible difference between your findings and the true results if you were able to obtain valid responses from everyone. For example, suppose you found that 35% of your students were planning on graduate study with a "sample error" of 3%. This means you could be quite sure (actually 95% sure) that between 32% and 38% of all your students are planning on graduate study (i.e., 35% - 3% and 35% + 3%). It makes intuitive sense that, the more people you survey, the smaller the sample error will be. The table on the next page lists the sample size needed for each amount of sample error.

Random Sample Size	Sample Error
196	7%
264	6%
384	5%
600	4%
1,067	3%
2,401	2%
9,604	1%

While increased sample size reduces the sample error, you can see from the table that the benefits eventually diminish, especially beyond sample sizes of 1000 or so. Even professionally conducted national polls rarely sample more than 1000 people. For your purposes, you may be quite happy with a sample of 300 or so people. You should rarely need more than about 500.

You may be wondering why no mention has been made of the overall size of the group you're sampling from. Doesn't it make a difference if you're sampling from 100 students or 25,000 alumni? No, it doesn't.

A few observations are in order here:

1. Depending on your response rate, you may need to contact many more people to get the number of responses you would like. For example, if you would like 500 responses and expect a 25% response rate, you will need to survey 2000 people initially.

2. If you want to study any subgroups (for example, just freshmen or just students who withdraw or just business majors), either plan a large enough overall sample that these are sufficiently large or realize that these subgroups will have a larger sample error.

3. Note the size of your sample error when you report and interpret your results. Chapter VI (Analyzing the Survey Data) will explain how to calculate it.

HOW WILL YOU SELECT YOUR SAMPLE?

For your survey results to be meaningful, you will want your sample to be representative of the entire group you are taking your sample from. Ideally, the best way to make sure a sample is representative is to choose it "randomly". In a random sample, every single person you'd like to survey has exactly the same chance of being drawn. The concept of randomness is what makes sweepstakes fair (everyone who enters has an equal chance of winning the car or the trip to Europe) and it's what makes a survey both fair and accurate.

It lets you assume that your sample will closely resemble the entire group you are selecting from. The moment you stop being perfectly random in picking your sample, your sample error increases.

Simple random samples can be generated in a number of ways. The easiest way is by computer: if the group you want to sample from (say, your undergraduate student body) is on a computer file, check if the computer can select a random sample for you.

If your computer doesn't have this capability, you can generate a random sample with the simple and reasonable assumption that the last three or four digits of each person's social security number (or other identification number or home telephone number) are randomly assigned. Let's say you would like to sample 600 students out of 5000 at your school:

1. Social security numbers (or telephone numbers) end in 10,000 possible four-digit combinations (0000 through 9999). Since you would like to sample 12% of your students (600 out of 5000), you would like to choose 12% or 1200 of the possible four-digit combinations.

2. Using a random numbers table or by asking a few colleagues for digits, choose a starting number--say, 3892.

3. Your random sample will consist of all students whose social security numbers end anywhere from 3892 through the next 1200 numbers, up to 5092. If your computer cannot list these people for you, a student or clerk can go through a listing and identify the sampled students with a highlighting pen.

There are other ways to obtain random samples:

Systematic random samples involve taking every tenth, 50th, or whatever person from a list. While this approach is simple, you may run the risk of omitting key cohorts from your sample. Let's say you are sampling 200 names from a 1000-page phone book and you decide to choose the first name on every fifth page (page 5, page 10, etc.). But maybe in your town there is a strong German group, mostly active and opinionated about your school. There are therefore a lot of names in the phone book beginning with "Sch". They start with the second name on page 750 and run through the last name on page 754. None of these people has even a chance of being sampled!

Stratified random samples involve breaking your entire group into subgroups and then taking a random sample of each subgroup. This ensures that even small subgroups (e.g., minority groups, small majors) are represented.

Cluster random samples involve taking a random sample of groups or "clusters" and then surveying everyone in those clusters. For example, you might take a random sample of freshman English classes and survey everyone in those classes. Or you might take a random sample of dormitory floors and survey everyone on those floors. Cluster samples are particularly useful when you plan to distribute a questionnaire in person.

All random sampling techniques assume that you have a complete and accurate list of all the people you wish to select your sample from. In reality, this is rarely the case. Alumni files, for example, are notoriously incomplete. Even rosters of currently enrolled students always include a few students with missing, incomplete, or outdated addresses. Surveys administered to a class in person will miss absent students.

This problem becomes particularly serious when you are trying to survey the public at large, as you might in a community needs assessment. There is usually no complete, accurate list available of the people you wish to choose your sample from. Many people rely on telephone directories, which omit people with unlisted numbers, people who have recently moved, and any adults in a household who do not have a listing in their names (depending on the policy of the telephone company in your area, this could include many married women, who might be an important target for you). Voter registration rolls have similar limitations. There is no way around this problem, except to recognize it as you plan your survey, analyze the findings, and report your results.

There are some instances when a non-random sample is appropriate. Sometimes the list of the group you wish to sample from is so incomplete that even selecting randomly from it would give you a biased sample. Sometimes the list is not easily accessible (for example, an alumni list that has not been computerized). Sometimes it takes too long to obtain the list (perhaps there's a long waiting list for computer services). Non-random samples are appropriate in these instances. Non-random samples can be valid, unbiased samples, but the burden of proof is on you to demonstrate that they are.

There are two basic types of non-random samples. A judgement sample is carefully chosen so that, in your best judgement, it is representative of the entire group. National "test markets" are chosen this way. You might use judgement sampling to select a panel. A convenience sample is just that--a sample chosen because it was easily accessible. If you ask a few faculty you're friendly with if you can borrow their classes for ten minutes to administer a survey, you're choosing a convenience sample.

WHAT SURVEY DESIGN SHOULD YOU USE?

Much of the research in higher education consists of conducting one survey of one sample of people and describing (or perhaps explaining or exploring relationships among) the results. Before you decide to do this yourself, consider other possibilities. Your choice will depend on the purposes of the study and time and monetary constraints.

One possibility is to survey more than one group and compare results among groups (comparing, for example, students who graduate with students who fail to graduate, business majors with education majors, men with women, freshmen with sophomores, last year's graduates with graduates of ten years ago).

Another possibility is to examine changes in one or more groups over a period of time. This is called a longitudinal survey. You might want to survey freshmen and then survey the same students four years later to assess changes in attitudes or goals.

If you think a more complex design might be best for you, consult a faculty member from a social sciences, psychology, or education department for advice on experimental design.

SHOULD THE SURVEY BE ANONYMOUS?

Should responses be identifiable? Since many people may be afraid to share their views other than anonymously, this is not a simple decision to make. It depends on four things:

The nature of your questions. The presumed advantage of an anonymous questionnaire is that it will increase respondents' chances of answering your survey and of answering it honestly. How important this is to you depends on the nature of the questions you are asking. A questionnaire dealing with sexual habits or political preferences may need anonymity much more than one asking about gardening habits.

The people you are surveying. Will they be sympathetic with the goals of your survey or suspicious of your motives? With a group of well-educated people familiar with the nature of your work, you may not need an anonymous questionnaire to get the response rate you desire.

How much factual information you need. If you want to break down your responses by sex, age, socioeconomic status, or other variables and you have access to such information

outside the questionnaire, you may find a questionnaire that identifies the respondent is preferable for two reasons. First, you won't have to ask for such factual data on your questionnaire, shortening it and thereby increasing your response rate. Second, by collecting your factual data from an original source rather than asking for it to be self-reported, you increase its accuracy. Some people may not remember their high school rank or annual income, for example, while others may choose not to respond to such questions.

The importance of follow-up mailings. With a mailed, anonymous survey, you lose any chance of following up with a second mailing to those who don't respond the first time. Since follow-up mailings can account for half of your total responses, this may be a serious problem. On the other hand, if you're handing out and collecting a survey of a "trapped audience", this is an unimportant consideration.

The disadvantages of anonymous surveys frequently outweigh their advantages, especially when they are mailed. You will find that professionally conducted surveys are usually identified in some way. Try to make your questionnaires as anonymous as possible by number-coding each rather than identifying it by name. Do everything you can in every other way to motivate the respondent to answer and make up for any diminished response rate.

HOW MUCH WILL IT COST?

Few of us have an open-ended budget. The rest of us need to consider how extensive a project we can undertake given our funds. In planning a budget for a survey research project, consider the following possible expenses:

- Personnel time, including your time, your staff's time, and the cost of any special help (e.g., student workers, graduate assistants) brought in specifically for this project.
- Printing the questionnaire, cover letter, return envelope, and outer envelope in sufficient quantity to cover follow-ups as well as the initial mailing.
- Postage for the initial and follow-up mailings.
- Incentives (e.g., a pencil, a quarter, a drawing for a gift certificate). These are discussed in Chapter IV (Conducting the Survey).
- Follow-up costs other than printing and postage, including telephone calls and certified mailings.

- Data processing costs.
- Duplicating and distributing the final report.

WHEN WILL YOU GET IT ALL DONE?

The final step in the planning process is to determine when the information will be needed for decisions and to work out a time line ensuring that everything will be done by then. If your report is not available when decisions must be made, all the time and energy put into it will have gone for naught.

Make a list of all the things you will need to do to complete the project. For each item, note (1) when it must be completed, (2) how long it will take to do, and (3) when it must be started. Note which dates are flexible. You may need to trim your survey if you cannot complete it by your deadline.

Appendix 1 gives an example of a time line form for a survey research project.

Chapter II.

FORMATS FOR SURVEY QUESTIONS

Once a survey has been planned, the first step in developing the questionnaire is to construct questionnaire items that will get you the information you want.

This chapter will describe the types of questionnaire formats available. The next chapter will discuss drafting individual items and integrating them into a questionnaire.

YES/NO QUESTIONS

Yes/no questions are questions with only two possible answers:

> Are you registered to vote?
> Do you support the legalization of marijuana?
> Are you a full-time college student?

The two possible answers are provided along with a space to indicate the chosen answer.

Advantages. Yes/no questions lend themselves to a wide variety of simple and complex data analyses. Responses can be summed into percents or treated as bivariate data and included in more complex analyses such as analysis of variance or regression analysis.

Disadvantages. Yes/no questions should be rarely used for two reasons. First, very few questions are purely yes or no; most have a grey area in between. Consider the sample questions above. A person may be registered to vote but in another state. He or she may support the legalization of marijuana in certain circumstances but not others. He or she may have been a full-time student for the past three years but is attending part-time this semester.

Second, yes/no questions are not very interesting, either to the researcher or to the respondent. All they will tell you is how many people said yes and how many said no. They will not tell you why. And they may be boring enough to the respondent to make him or her throw the whole questionnaire into the circular file.

To salvage a yes/no question, you can make it more interesting by making it part of a "contingency question" such as this one:

> Are you attending college full-time or part-time this fall?
> ___ Full-time. Go to Question 9.
> ___ Part-time: Please rate your satisfaction with the following:

Contingency questions have disadvantages, however, as discussed in the next chapter.

MULTIPLE CHOICE QUESTIONS

Multiple choice or fixed choice questions consist of a question or "stem" followed by a set of answers that the respondent chooses from:

> What is your one main source of financial support while attending college?
> ___ My own earnings and savings
> ___ My parents
> ___ Financial aid and loans
> ___ Other (please specify: _____)

Advantages. Multiple choice items are widely used, principally because they are quickly and easily answered and the responses are generally easy to tally. They are particularly good for collecting factual information.

Disadvantages. The chief difficulty in writing multiple choice questions is making sure you have included all possible answers. If you're not sure you've mentioned every possibility, you can use an "Other--please specify" response, but don't use it to salvage a poorly written question. Pretest the item as an open ended question and use the most frequent answers as your responses.

Another problem with multiple choice questions is that respondents will often check more than one answer, even if you don't want them to. Your coding, analysis, and interpretation will be a lot harder if you allow multiple responses. Try to make clear in your directions that only the one best answer should be marked. If a few respondents still persist in marking two or more answers, choose one randomly and discard the rest as you edit your responses.

A third limitation of multiple choice questions is that the data they yield are usually categorical or ordered. This can seriously limit your data analysis options. One way to get around this is to code responses to a multiple choice question as a series of bivariate (yes/no) responses. Responses to this question, for example,

> Where do you live?
> ___ In a campus dorm
> ___ At home
> ___ Off campus in a rented house or apartment

could be coded as responses to three yes/no questions: Do you live in a campus dorm? Do you live at home? Do you live off campus? A respondent living off campus would be coded No-No-Yes.

Tips on writing. Here are some suggestions for writing multiple choice questions:

1. The stem should ask a complete question, even if it is phrased as an incomplete statement. The respondent shouldn't have to read the responses to determine the question.

2. Limit the number of possible choices to five or six. It's hard for most people to keep more than that many in mind.

3. Your choices should all be mutually exclusive (i.e., clearly distinct and separate from one another).

4. If there is a dominant response that you're not interested in, include it in the stem (for example, "Aside from housing, what . . . ?").

5. Order the responses logically--numerically if the answers are numbers, for example. (If your set of responses is a list of numbers, most people will pick from the middle of the list.)

6. "Stack" your responses vertically, with the boxes or spaces to be checked in a column on the left. This saves confusion and searching for the right space to mark.

RANKINGS

In a ranking item, the respondent is asked to number all responses according to specified criteria:

> Please rank each category below to indicate how important it was to you as a source of financing. Rank the most important source "1", the second most important source "2", etc.
>
> ___ Full and/or part time work
> ___ Savings
> ___ Parental aid
> ___ Grants (e.g., Pell)
> ___ Loans
> ___ Scholarships
> ___ Veterans' benefits
> ___ Social Security benefits

Advantages. The primary advantage of rankings is that many respondents can easily understand them.

Disadvantages. Rankings have three serious weaknesses. First, they can be tedious to complete. Often a respondent must reread the list over and over as he or she is ranking it.

Second, they often incorrectly assume that respondents feel differently about every item on the list; this is often not true.

Third, rankings are difficult to statistically analyze and interpret. They yield only ordered data which seriously limit your data analysis choices. You will never know if respondents felt their #1 and #2 choices were close together or far apart. This makes interpretation of your findings difficult.

Tips on writing. The key to writing a good ranking item is to make sure your directions are complete and that the criteria for the ranking are clearly specified. Don't just say, for example, "Rank the following giving a 1 to the best and a 10 to the worst." Define in what respect you mean "best". Other tips: keep the list of items to be ranked no longer than ten items, all on one page, and make clear whether you want all items ranked or just, say, the top three.

LIKERT RATING SCALES

Likert scales are probably the best-known rating scales. They are usually characterized by the headings "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree," although the "Strongly Agree" and "Strongly Disagree" headings are optional.

The instructor. . .	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Spoke clearly.	___	___	___	___	___
Graded fairly.	___	___	___	___	___
Discouraged questions.	___	___	___	___	___

Advantages. Many people are familiar with Likert scales and therefore find them easy to complete. Like other rating scales, Likert scales are efficient (a great deal of information can be provided quickly and compactly) and permit comparisons among answers within the scale.

Likert scales yield ordered but not interval data. Many interval data analyses are sufficiently "robust," however, to be used with Likert data. This opens a world of possible statistical analyses.

Disadvantages. Likert scales are most successfully used to measure attitudes or opinions rather than factual information. Novice researchers are often tempted to construct

an entire questionnaire of Likert items to facilitate data analysis. Don't do this if it means forcing some items into an inappropriate, awkward, or unclear format.

It is often difficult to write unambiguous items for Likert scales. Think of the very different people who might agree with "I seldom attend parties" or disagree with "My math course requires about as much time and effort as other courses."

Tips on writing. Keep at least some of your items negative or presenting an opposing view. This will avoid a "yeasayer/naysayer effect", in which someone with generally positive feelings toward the subject checks all the "Strongly Agree" responses without reading the individual items.

Use of a "Not Sure", "Undecided", or "Don't Know" column is optional, depending on whether you want to force an opinion. If you decide to leave it out and force an opinion, you may be forcing a lie from someone unfamiliar with the issue. But if you include it, some people will use it as a way out for opinions they prefer not to take the time to think out. And you won't be able to tell (without further questions) whether an "Undecided" respondent is truly that or really "Uninformed". The decision depends on your questions and the people you are surveying.

SEMANTIC DIFFERENTIAL RATING SCALES

Another special kind of rating scale is the semantic differential. It consists of antonyms with either five or seven spaces in between. The respondent marks the space that best reflects his or her opinion:

The library's services are:

Useful	___ ___ ___ ___ ___	Useless
Slow	___ ___ ___ ___ ___	Fast
For Faculty	___ ___ ___ ___ ___	For Students

Advantages. Semantic differential scales yield interval data that are usable with virtually any statistical analysis. Like the Likert scale, they are an efficient way to collect a great deal of information and they make comparisons among answers straightforward.

Disadvantages. It is often difficult to give concise written directions for semantic differentials, especially to respondents unfamiliar with rating scales.

Semantic differential items can only be used when you

have obvious antonyms for the subject at hand, and they easily slip into trivia. One might be tempted to ask, for example, if the gym facilities are useful/useless, adequate/inadequate, well designed/poorly designed, and convenient/inconvenient, when any one of these pairs might be adequate.

Tips on writing. As with Likert scales, avoid a "yeasayer/naysayer effect" by putting some negative words or phrases on the left side as well as the right. Five spaces between antonyms are usually adequate for most purposes; people cannot distinguish well among more than seven.

ECOSYSTEM RATING SCALES

Webster's defines an ecosystem as "the complex of a community and its environment functioning as an ecological unit in nature." An ecosystem rating scale (also known as goal attainment scaling or GAS) asks for two ratings, with the second rating giving information on the environment in which the first rating was made. The second rating thus facilitates interpretation of the first by helping us understand the "complex" of the initial rating and its environment.

Ecosystems are used in evaluation studies to measure the attainment of goals and objectives. They usually consist of a set of goal statements. The respondent is asked to rate each statement (usually on a 1 to 5 scale) twice: first on the growth obtained and second on the growth desired:

	Growth obtained	Growth desired
An appreciation of the limitations of our current knowledge.	___	___
An understanding of the nature of science and scientific research.	___	___
Awareness of the value of pursuing lifelong education.	___	___

Responses in the second column greatly improve interpretation of the first. If a statement receives a low "growth obtained" rating, for example, the "growth desired" rating will tell you whether you indeed have a problem.

The ecosystem concept can be used to help interpret many other types of ratings or evaluations. The first

rating might ask for the respondent's satisfaction with a service, for example. The second rating could then ask for the relative importance or value of that service, how frequently the respondent uses the service, or how much improvement the respondent has seen in the service over the last year.

Advantages. Because of its dual-rating approach, an ecosystem is probably one of the best means available to measure the attainment of goals and objectives. It is efficient and yields interval data to facilitate data analysis. Its second rating greatly facilitates interpretation of your findings and makes comparisons easy.

Disadvantages. The chief disadvantage of an ecosystem is that it is difficult to provide concise, clear written directions for it. It may be difficult, frustrating, or time consuming for some people to complete.

Tips on writing. The trick to writing an ecosystem is to have good, clear directions. Describe the meaning of each 1-to-5 rating number (e.g., excellent, good, etc.).

OTHER RATING SCALES

You can make up your own rating scale. Many people use the following:

Excellent, good, fair, poor
Frequently, sometimes, never
Approve, undecided, disapprove
Better, the same, worse

The letter grades A, B, C, D, and E are an excellent choice when asking for evaluations. They are universally understood and yield interval data. They should be accompanied by a definition of each grade, since some people consider C average while others consider it below average.

Advantages. Any rating scales in a grid format give you a tremendous amount of information quickly and easily and let you compare responses to various questions. Making up your own rating scale is the appropriate choice when none of the question formats described in this chapter appears to fit your needs. While rating scale data are often ranked, many interval data analyses are sufficiently "robust" to be used with this type of data.

Disadvantages. When you depart from accepted formats, you run the increased risk that respondents may be confused by an unfamiliar rating scale. It is even more important than usual that you pilot test your questionnaire carefully before administering it.

Tips on writing. The general principles used to construct other rating scales apply to your own as well.

Whenever you use a rating scale with a grid format, label each column with names, not just numbers. Don't ask, for example, for a rating of 1 through 5, with 1 being "most" and 5 being "least." People will have different concepts of 2, 3, and 4 unless you spell them out. Do you want 3 to mean "usual" or "expected average," for example?

Many researchers number or letter-code each column and explain in the directions what each code means. This can be often confusing and frustrating to the respondent.

You must be careful when constructing any rating scale to mix positive and negative statements to avoid a possible "yeasayer/naysayer" effect.

Don't use more than four or five columns if possible--certainly no more than seven. People tend to shy away from extreme categories and stay in the middle.

OPEN-ENDED QUESTIONS

Open-ended or free-response questions leave a blank space where the respondent composes his or her own answer:

> What was the one best part of this program?
>
> _____

Sentence completion items are a special kind of open-ended question:

> More than anything else, I would advise new freshmen to _____.

Advantages. There are four occasions when open-ended items may be best:

1. When many answers (more than six or seven) are possible, or when a multiple-choice question might overlook some important responses.

2. When you are asking for occupation.

3. When a multiple-choice item might bias responses by steering respondents in a particular direction.

4. When your question is interesting enough that people will want to answer it. People enjoy being asked, "How would you improve...?", for example.

There are a few other advantages to open-ended questions. They are useful in pilot studies for drafting more specific questions for the final study. And a few quotes from open-ended questions can add "sparkle" and credibility to your report and help readers uncomfortable with numbers understand your results.

Disadvantages. Open-ended questions are not very popular with respondents, since they make them work harder and lengthen the time required to complete the questionnaire. Very often the respondent will leave them blank, along with the rest of the questionnaire!

They're not very popular with researchers, either, since the answers are generally difficult to read, categorize, process, and interpret. The data must be analyzed subjectively, not objectively.

Tips on writing. The amount of space allotted for an open-ended item should give a clue to the expected response length. Keep it as short as possible, and rule the space to make answers easier to write and read.

Sentence completion items will be most successful if they ask for a response of just a word or two and if the blank is at the end of the sentence.

The major problem with open-ended questions is figuring out how to analyze the answers. Coding responses to open-ended questions is discussed in Chapter V (Processing the Survey Results).

Chapter III.

DEVELOPING THE SURVEY INSTRUMENT

Now that we have discussed planning your survey and the kind of questionnaire items you might employ, you're ready to draft the questionnaire. This chapter will discuss drafting individual items and assembling them into a questionnaire. But, first, let's talk about a question that's probably uppermost on your mind:

HOW CAN YOU MAXIMIZE YOUR RESPONSE RATE?

Four factors will probably have the most effect on your response rate:

1. The topic of your survey. A survey asking for simple, non-threatening facts will probably get a higher return rate than one asking for opinions on a sensitive issue.

2. The people you are surveying. You'll probably get a higher response rate if your subjects are sympathetic with your project and find it interesting and relevant than if they find it uninteresting or valueless.

3. How considerate you are of your respondents. Recognize that you have no right to expect strangers (or even acquaintances) to go to all the trouble of filling out a form and that they are doing you a great favor when they do. If you show your appreciation by doing all you can to minimize your respondent's trouble and make his or her job as easy as possible, he or she will be much more likely to respond to your survey and give you valid information.

4. How professional and important the study appears. If you appear professional and the study appears important, you will make your respondent's contribution seem much more worthwhile.

There is not much you can do to alter the first two factors. The only way to handle respondent concerns about a survey on a sensitive topic is to emphasize the confidentiality and professionalism of your survey and to include the name and telephone number of someone they can contact with questions. The only way to handle unenthused subjects is with a convincing cover letter.

But you can do many things about the last two factors--BEING PROFESSIONAL AND CONSIDERATE OF YOUR RESPONDENTS--and therefore maximize your response rate.

To find out how considerate you are of your respondents (and how well you are maximizing your response rate), ask yourself the following:

1. How long is your questionnaire? The shorter it is, the more considerate you are of your respondent's time.

2. How long does it appear to be? A cluttered page of minuscule type looks long and complicated.

3. How clear are the questions? Must the respondent spend time trying to figure out what you really mean?

4. How clear are the directions and layout? Can the respondent move easily from one question to the next?

5. Was the questionnaire pilot tested? If it wasn't, you can't be sure your questions and directions are clear enough.

6. Which questions are first? Last? The long, complicated, and boring questions should be at the end, where your respondent will see that the questionnaire won't take much longer to complete.

7. Is a stamped, addressed return envelope enclosed? If it isn't, you're telling your respondents you really don't care whether you hear them or not.

8. When is the survey mailed? Will it arrive at a time when your respondent is busy with other matters, such as before a weekend or holiday?

9. Do you offer a summary of the findings, so your respondent can see the impact of his or her efforts?

10. Have you enumerated all possible reasons for people in your sample not to respond to your questionnaire? Have you done all you can to overcome those obstacles?

To find out how professional you appear to your respondents (and how well you are further maximizing your response rate), ask yourself the following:

1. Does your questionnaire ask interesting, important-sounding questions?

2. Is it carefully laid out and grammatically flawless?

3. Does it have a title and sponsor?

4. Is it well-reproduced on quality paper?

5. Is the cover letter convincing of the importance of the study and the value of each individual response?

6. Will a follow-up mailing be conducted?

This chapter and those following will address each of these points in more detail.

A great deal of research has been done on other factors affecting response rate--things like item type, print size, paper color, etc.--often with conflicting results. Many studies support the contention presented here that surveys that are professional and considerate of respondents have higher response rates. In many other research studies, the effects studied appear to interact with the nature of the study and its subjects.

WHAT GOES INTO A GOOD QUESTIONNAIRE ITEM?

One of the most important ways to be considerate of your respondents is to write questions that are CLEARLY UNDERSTOOD. There are a number of ways you can make sure your question will be clear to your respondents:

1. Keep it short. Short, straightforward items are easier to understand than compound or complex statements and therefore yield more accurate answers. They also mean a shorter questionnaire and therefore an increased response rate. Lengthy questions may cause the respondent to lose focus and may also cause fatigue and impatience.

Here is an example of a question that could be made much shorter:

> Which of the following statements best describes your enrollment pattern at Briggs College?
>
> ___ I was enrolled primarily as a full-time student.
> ___ I was enrolled primarily as a part-time student.

Rewrite each question several times, trying to simplify each sentence as much as possible.

2. Keep it readable. Keep the vocabulary level low; go over each word in your item and make sure it is as simple as possible. Avoid the jargon of your field; don't use words like "attrition" or "articulation," for example. Here's an item that's loaded with jargon:

Please indicate yes or no in each of the following cases where you use computing services.

1 Data Base Management
2 Word Processing
3 Record Keeping
4 Spreadsheet Analysis
5 Data Analysis and/or Research
6 Programming

I learned through a pilot study that the following item also has jargon.

Are you primarily interested in taking courses for credit, or would you prefer to attend non-credit courses?
___ Credit
___ Non-credit

"Credit" and "non-credit" may be incomprehensible to people who have never gone to college.

Avoid negative items. If you must have them, capitalize and/or underline NOT, EXCEPT, etc. Beware of double negatives and other easily confused phrases.

3. Make sure it asks only one question. Rather than ask, "Should 18 year olds have the rights of an adult?", specify which rights you mean: voting, drinking, marriage, or whatever. A "double-barreled" item like the following asks several questions that might each be answered differently: "Do you feel that computer literacy is, or should be, an objective or requirement of the college?" To avoid this problem, check your use of the words "and" and "or" and limit your questions to one adjective or adverb each.

4. Keep it interesting. Don't let your items get pedestrian or monotonous; vary them as much as you can. The six items below would quickly frustrate almost any respondent:

How important is your need to locate information of the following types?

	Least important				Most important
Simple facts for course purposes	___	___	___	___	___
Simple facts for research purposes	___	___	___	___	___
Simple facts for general purposes	___	___	___	___	___
Complex data for course purposes	___	___	___	___	___
Complex data for research purposes	___	___	___	___	___
Complex data for general purposes	___	___	___	___	___

Many people write questionnaires using the same kind of item format (e.g., a Likert scale) throughout. While this makes it very easy to compare responses to different items, it can also make the questionnaire monotonous and boring.

5. Make all definitions, assumptions, and qualifiers clearly understood. Clarify terms that could be misunderstood. A question like "Do you use the IBM mainframe computer?" can be interpreted many ways. One person could say that anyone who's ever looked at a printout is technically a user; another could say that only those with "hands on" experience are users. Similarly, rather than ask for age, ask for year of birth or age as of January 1. Terms like "value," "how much," "usually," "most," "quality," and "now" are full of ambiguities.

When asking for an estimate of something, spell out the period of time you are interested in: last week? per day? When you ask for salary, similarly specify whether you want gross or net salary and whether you want salary rate per year, per month, biweekly, weekly, or per hour. In fact, specify the unit of measurement for all numerical responses. Do you want the student's course load expressed as number of courses or number of credits? Label the response blank with the appropriate unit of measurement to help clarify your question.

When asking for a rating or comparison, make sure you give a clear point of reference. Spell out the criteria to be used. Do you want the staff rated on courtesy, cheerfulness, helpfulness, or knowledge? Is "above average" in terms of actual or desired performance? In terms of employees here or employees in general?

If your question includes a qualifying phrase (e.g., "except for housing," "if you commute"), place it at the beginning of your stem. Your sentence structure may not be the best, but the qualifier won't be overlooked.

Make sure your questions have no hidden assumptions written into them. How many assumptions can you find in this classic: "Have you stopped beating your wife?"

When it comes to definitions, assumptions, and qualifiers, consider the feelings of your respondent. Don't phrase definitions in such a way that he or she feels stupid. Make sure the respondent has all the information necessary to answer the question. Be careful of presuming, say, that the respondent has graduated from high school.

6. Make your question as specific as possible. When you are asking a question with a numerical or frequency-type

response, consider just leaving a blank for the person to fill in the response rather than giving a series of multiple choice responses or an always/sometimes/never rating scale. Consider this question:

> How much do you usually spend on textbooks each semester?
>
> ___ $ 0-19
> ___ $20-39
> ___ $40-59
> ___ $60 or more

This item is poor for several reasons. First, it requires the respondent to make a mental average of spending over several semesters. Second, it has five lines of reading (it's not a very long item but it could be shorter). Third, the responses will be ranked data, not scaled. You will not be able to calculate the average spending on textbooks or perform many other statistical analyses. The question would be greatly improved if it were rewritten as follows:

> About how much did you spend on textbooks last fall? $____

The only times it does pay to put a numerical answer into a multiple choice or rating scale format is with questions in which respondents may not remember the exact amount ("How many times have you called home in the past year?") and with sensitive questions like age or salary. In those cases, people will be more willing and able to indicate a general category than an exact answer.

7. Consider making your question behavioral. It is often harder for people to express their feelings or opinions than to describe concrete actions. Opinion questions are also often harder to analyze and interpret than behavioral "vignette" questions, since respondents' views come from different frames of reference. Student opinions of your advisement program, for example, may be based in part on the quality of students' high school advisement experiences or on stories they've heard about advisement at other colleges.

Your questionnaire will therefore be less ambiguous and more reliable if you make as many items as possible concrete or "behavioral:" asking for a behavior rather than a feeling or opinion. For example, instead of asking, "Do you consider yourself a hard working student?," ask, "How many hours per day do you usually study?" or "How many hours did you study yesterday?" Try asking several questions and inferring an opinion rather than simply asking for the opinion.

Don't try to make your questions too specific, however. A large number of "trivial" questions may cause confusion or a loss of interest and will lengthen your questionnaire considerably.

8. Avoid loaded, leading, or sensitive questions. Many people are comfortable with the status quo and reluctant to admit any inferiority or wrongdoing. They may lie if you ask them whether they smoke, watch TV, go to art museums, or vote. Try not to phrase questions in a psychologically threatening way. Rather than ask if a respondent does something good or bad (e.g., vote, cheat on tests), ask how often he or she does it. It also helps to ask about very specific behaviors. If you ask, "Did you glance at your neighbor's paper during the last math test?," some respondents may not even realize you are asking about cheating behavior. Others may recognize your intent but still feel they can answer your question honestly without labeling themselves "cheaters."

Questions worded in the first person ("Do you cheat?") will be answered differently from those in the third person ("Do your friends cheat?"). Some respondents may find third-person questions easier to answer honestly.

9. Avoid biased questions. While no one writes these kinds of questions on purpose, it's easy to write them inadvertently. Here are two examples:

> Do you agree that computer literacy should be an objective or requirement of the college?
>
> Should harsher penalties be enacted for crimes committed against the elderly?

The first question is subtly biased because of the word "agree". Respondents generally find it easier and less threatening to agree than disagree. The second question is biased because of insufficient information on both sides of the issue; as the question now stands, who would disagree with it?

One of the best tests for biased questions is to imagine you're writing questions from the opposite point of view. For example, if you're trying to collect data to support the need for expanded counseling services, imagine you're trying to cut back on them. Would you still ask the same questions and phrase them the same way?

Another way to avoid bias is to ask about both the pros and cons of a sensitive issue. Don't ask the respondent to make criticisms without giving him or her a chance to praise as well.

10. Make the item easy and fast to answer. The respondent should easily understand how to decide on an answer and how to record it. A simple answer format requiring only a few checks is better than a complicated scoring key.

11. Design the item to yield data that are meaningful and easily interpreted. Don't ask unimportant questions. Review each one to see how it contributes to the objectives of your study. You should be able to explain why you are asking each question.

SHOULD YOU BE CONCERNED ABOUT THE VALIDITY AND RELIABILITY OF YOUR ITEMS?

This depends on the subject and purpose of your study. A simple, straightforward "one shot" study on an uncontroversial subject, whose results are only for general information and not for a specific decision, probably doesn't need much evidence of reliability or validity. You should consider collecting evidence of reliability or validity, however, if your study has any of the following characteristics:

- Your findings may lead to major changes.
- The study is about a controversial subject and the findings may be hotly disputed.
- The study is about a sensitive issue that respondents may not answer truthfully on.
- There is disagreement about the definitions or assumptions you are building into your study (e.g., Do all students need an academic advisor? What constitutes advisement?).
- The study is part of a substantial, expensive, perhaps longitudinal research project.

HOW IS RELIABILITY ESTABLISHED?

A reliable questionnaire is a questionnaire that elicits consistent responses. This usually means that responses to similar questions within a questionnaire should be similar. You can measure this kind of reliability (called internal consistency) by comparing answers to two or more similar questions. You would expect at least a moderate correlation, for example, among a group of items all asking about math anxiety. You can identify inconsistent responses by putting two very similar questions in different parts of the questionnaire and seeing if the responses are similar.

The problem with measuring the internal consistency of a questionnaire is that you must ask at least two questions on the same subject, and to keep the questionnaire as short as possible we often ask only one question on each topic.

In some instances you may also be concerned with responses remaining consistent over a period of time. This is only a rare concern, however, since most questionnaires deal with opinions or other information that is expected to change over time. Indeed, the purpose of a questionnaire study is often to collect information to help us facilitate change. If you decide you need evidence of reliability over time, you will need to administer an identical questionnaire at a later date to the same sample of people and correlate their responses to the two questionnaires.

HOW IS VALIDITY ESTABLISHED?

There are a number of definitions of validity. Perhaps the most important characteristic of a valid questionnaire is that it measures what you want it to. A survey designed to measure freshman satisfaction with the orientation program, for example, should measure just that. Validity further means that each respondent should interpret each question in the same way, which in turn means that your questions must be consistently clear.

There are a number of ways you can make sure your questionnaire is valid:

1. Examine the items. They should have an intuitive relationship to your study's topic and goals.

2. Pilot test your questionnaire (see Chapter IV) to make sure it is clear and easily understood.

3. Keep your items free from bias and ambiguities, using the tips given earlier in this chapter.

4. If you are asking about a topic that respondents may not answer truthfully on, include a few items solely to check the validity of responses. You can identify liars, for example, by asking a bogus or nonsense question, such as whether the respondent belongs to a nonexistent group.

5. Compare your findings with independent factual data or with findings from similar studies.

Another approach to validity recognizes that while you can never ask all the questions you would like to, you should make sure you ask an adequate sample of all possible

questions. This kind of validity can be evaluated only by examining the items carefully and sharing them with other people knowledgeable about the subject. If you are doing an attrition study, for example, you will want to review the literature and talk with people on campus for ideas on why students drop out and then include as many of these ideas as possible in your questionnaire.

A third approach to validity is important when you are using survey responses to predict a behavior, such as drug use or dropping out of school. If you wanted to design a valid questionnaire to identify students who have the potential to turn to drugs, you might administer your questionnaire to a group of drug-free students and a group known to have used drugs. If the questionnaire is valid, you will get very different responses from the two groups.

HOW SHOULD THE ITEMS BE ORDERED IN THE QUESTIONNAIRE?

You will find this task easier if you write each question on a separate card or slip of paper.

The first questions should be chosen with care. They should be questions that will "hook" the respondent into answering the survey and thus increase your response rate. Your first questions should have the following characteristics:

1. They should be intriguing, perhaps asking for an opinion on an interesting topic or for some interesting information on the respondent's background. Demographic questions (e.g., on sex, age, major) should not go first.

2. They should be easy to answer. They should not require a lot of deep thought and should be answerable with a simple check mark. This is not the place to put complicated rating scales or open-ended questions.

3. They should be general. Most people have an easier time moving from generalities to specifics than the other way around. Check if the first questions will influence later responses. If so, is this what you want?

4. They should be somewhat impersonal. While you can ask immediately about general opinions or background, save the sensitive questions for later. "Favorable" questions--ones asking about accomplishments, for example--are good to put first.

The remaining questions should follow a natural flow, both logically and psychologically. Try to keep questions

on a similar topic together, so the respondent can stay on one train of thought. Within each topic, try to begin with general questions and move into specifics. Gallup, for example, first asks respondents about general feelings on an issue and then asks about specific parts of the issue.

Try also to group items of the same format together. This is especially important if you're using unique item types with complicated directions.

Avoid contingency questions, those where if you check "yes" to one question, you then "GO TO" another set of questions. They're confusing and frustrating and therefore reduce response rates. It's probably easier to have everyone answer all questions and then delete non-applicable answers yourself during your data analysis. If you do have several questions that you'll want only a small group to answer, put them at the end of the questionnaire and tell everyone else to stop before reaching them. Or perhaps you can send this group a separate questionnaire.

The last questions should be the ones your respondents will be least enthused about answering. We'll hope that by this they'll be "hooked" and won't mind answering these last few questions. If they do decide to skip them, at least you will have already gotten some data! There are four kinds of questions that should be as near the end as possible:

1. Delicate, intimate, or sensitive questions. These include questions on age, salary, personal habits and preferences such as how often someone drinks, and opinions on sensitive subjects like abortion.

2. Complex questions that take a long time to read or a lot of thought to answer.

3. Open-ended questions since these take a long time to answer.

4. Boring questions, including demographic items. Make sure you really need each piece of demographic information. Your respondents will find them irritants at best and offensive at worst. Try to make clear to your respondent why you need this information.

WHAT ELSE GOES INTO A QUESTIONNAIRE?

Beside your questions, your questionnaire needs a title, directions, and a closing.

Title and sponsor. You'd be surprised how often these are neglected! They are important tools in convincing your

respondent of the professionalism of your study and therefore in increasing your response rate. The title lets the respondent know what is to come and is an important motivating device. Make it intriguing enough to pique the respondent's interest and help convince him or her to respond. Including the study's sponsor ("Office of Institutional Research, Atlantic State College") gives the questionnaire credence and legitimacy.

Many people leave the title and sponsor off the questionnaire because they are identified elsewhere--either in a cover letter or by the person administering the survey. Even in these instances, however, it's important to include these things right on the questionnaire. They add a professional touch that will help convince respondents to take your questionnaire seriously.

Directions should make the respondent want to answer truthfully. They should be simply phrased and crystal clear, telling the respondent how to answer each question and how to record his or her answers. Make clear, for example, whether the respondent should pick the one best response or as many as apply. Can he or she elaborate on responses? If so, where? Use boldface, capitals, or italics to draw attention to the directions.

Generally speaking, shorter directions are easier to understand:

> Confusing: Please mark the number which more accurately reflects your opinion concerning each question listed below. Circling number 1 would indicate excellent and complete agreement, circling number 2 would indicate satisfactory and general agreement, circling number 3 would indicate unsatisfactory and general disagreement, and circling number 4 would indicate poor and total disagreement.
>
> Better: For each statement below, check the box that most accurately shows your agreement. (These directions would be followed by statements with four columns of boxes labeled ("Strongly Agree," "Agree," "Disagree," and "Strongly Disagree.")

Directions are simpler when you use as few different response methods as possible. You may want to consider short introductions to each section to explain new response methods and help respondents "shift gears".

Closing. Don't forget to say thank you! Also repeat directions on how to return the questionnaire. A box to check (and space for an address) if the respondent would like a copy of the results is a nice touch.

HOW LONG SHOULD A QUESTIONNAIRE BE?

The shorter the questionnaire, the less formidable it looks and therefore the higher the response rate. (Up to a point: once a questionnaire is over ten pages long, whether it is ten, fifteen, or twenty pages long will not affect the response rate.) The ideal questionnaire is on a double postcard and the next best is on one piece of paper.

If your questionnaire draft does not appear to fit onto one piece of paper, here are some ways to make it fit:

1. Shorten it! Go over the entire questionnaire. Eliminate the questions that would be interesting but are really unessential. Try to eliminate all unnecessary words and phrases.

2. Reproduce a two page questionnaire onto the front and back of one piece of paper.

3. If the questionnaire won't quite fit onto the front and back of an 8 1/2 by 11 page, use an 8 1/2 by 14 page.

4. Break your questions into two or more questionnaires, sending each to a randomly chosen fraction of your sample. Ask everyone the essential questions, but distribute the remaining questions among the questionnaires.

5. Use small type. Professionally typeset your questionnaire if you can. If you can't, perhaps you have the facilities to "shrink" your typewritten page so it looks smaller (but don't make it so small that it's hard to read!). At the very least, use elite type instead of pica.

6. Leave off the cover page. All it does is warn the respondent that a mighty long questionnaire is underneath!

WHAT SHOULD YOU KEEP IN MIND AS YOU HAVE THE QUESTIONNAIRE TYPED AND DUPLICATED?

A carefully laid out, grammatically flawless questionnaire looks shorter and more professional, is much easier to complete, and therefore yields a higher response rate and better quality data. Here are some suggestions:

1. Cleanly format your questionnaire. Two columns make it look shorter and are easier to read.

2. Use plenty of "white space." Use generous margins and spacing. If your questions fill only three quarters of a page, spread them out.

3. Small type makes your questionnaire look not only shorter but also more professional.

4. "Stack" the responses to multiple choice items vertically. A respondent can find and mark the appropriate response more easily when the choices are listed in a column rather than across one or two lines:

Confusing: ___ Yes ___ No

Better: ___ Yes
___ No

Responses in one column are also easier for you and your helpers to find and code. And columns of responses create white space that adds eye appeal.

5. Make spaces for check marks with professionally drawn boxes, brackets such as [ ], parentheses such as ( ), or simply a short line such as ___. Typed boxes made with slashes and underscores look terrible and hand drawn boxes even worse.

6. If possible, avoid "op-scan" sheets or those data entry codes that we're seeing on more and more questionnaires. They look impersonal, giving the impression that no one will look at any one person's response or care what he or she has to say. They also make the questionnaire more confusing or difficult to complete. Use data entry codes only if:

- You are sending out thousands of questionnaires.
- You are asking for only very impersonal, factual information.
- The codes may help convince your respondents of the professionalism of your survey.
- Your data entry clerks cannot deal with a form without these codes (this is very unlikely).
- You or an assistant cannot code them yourself after they are returned.

Pre-coded questionnaires are discussed further in Chapter V (Processing the Survey Results).

7. Proofread your questionnaire carefully for grammar and spelling. A single error will detract from the professional appearance of your questionnaire. Ask some lay-

people outside your field to read your questionnaire and let you know of any directions, items, or words they find hard to understand.

8. Reproduce your questionnaire by the best means possible. Offset printing looks best and is not too expensive. Dittos, photocopies, and mimeographs can be hard to read and don't look professional.

9. Use quality paper. Subtly colored paper--nothing garish or too bright to be readable--is a nice touch if possible.

Appendix 2 gives a few examples of questionnaires that have been used in institutional research surveys.

Chapter IV.

CONDUCTING THE SURVEY

Once you have prepared your questionnaire, you are ready to conduct the survey. In this chapter, we will discuss preparing a questionnaire package, conducting a pilot test, and administering the survey. We will also discuss what tasks can be delegated to others and ways you can use a microcomputer or word processor to help you.

WHAT IS A QUESTIONNAIRE "PACKAGE"?

If you are mailing your questionnaire, you will need to prepare three additional items: a cover letter, an envelope to return the questionnaire in, and the envelope that you will mail everything in. Each item, when properly prepared, can help motivate the respondent to answer; indeed, that's the whole purpose of the cover letter.

WHAT SHOULD GO INTO A COVER LETTER?

The cover letter speaks in your absence. It says all the things you would say in person to establish and maintain a rapport with the respondent and convince the respondent to decide to complete your questionnaire. It must do all this quickly and succinctly.

There are several ways you can persuade the respondent to answer:

1. Make the study look important. Explain the nature and purpose of the study and why you are asking the questions you have chosen. Show that the study addresses important, interesting questions and issues and explain how the results will be used to benefit someone. Stress that the respondent is part of a carefully selected sample and you need his or her response.

To further impress the respondent with the importance of the study, encourage an immediate response. Date the letter and set a deadline.

2. Appeal to the respondent's self-interest. If at all possible, try to get a sense of your respondents' loyalties and priorities and show how your results will either benefit them directly or benefit some cause or issue they are concerned about. With adult groups, for example, you might be able to stress how your study will lead to saving taxpayers' money.

A more direct approach is to give the respondent a material incentive to answer. It may increase your response rate by giving the respondent a sense of obligation. Your incentive should be carefully chosen to have the most appeal to your particular group.

- Enclose a pencil, a quarter, a magazine, or some other small item of value.
- Promise to make a charitable contribution if the questionnaire is returned.
- Offer free tickets to a college event if the questionnaire is returned.
- Put all returned questionnaires into a drawing for something of value (a $100 scholarship, a gift certificate from the college bookstore, a microcomputer).

You can also appeal to the respondent's self-interest by clarifying how easy his or her role is. Give the respondent a clear idea of how long it will take to complete the questionnaire (assuming it won't take more than a few minutes). Note that a stamped, self-addressed envelope is enclosed.

In case all else fails. . .threaten the respondent (in a nice way). Tell him or her to expect a barrage of letters, phone calls, and what-have-you if the questionnaire is not returned!

3. Make the study look professional. Make the respondent feel he or she is collaborating with professional, scientific researchers who are authorities on this issue. Have the letter immaculately typed on quality letterhead paper--it conveys an official sanction of the project. Have an important person sign the letter--preferably a name that respondents will recognize and react favorably to. For most surveys conducted by colleges and universities, the president should sign. If it's not important enough for him or her to sign, is it important enough to do at all?

4. Address the issue of confidentiality. Regardless of whether your survey is anonymous, guarantee confidentiality. If your survey is totally anonymous, make this clear. If it is not, explain why (at least explain the need for follow-up mailings). Stress that you are interested only in aggregate responses and that the respondent's questionnaire will be separated from any personal identification.

5. Personalize the letter. We all hate impersonal form letters. You should therefore try to personalize the letter in some way unless the topic of your survey is so sensitive that respondents will want to feel as anonymous as possible.

A personally-typed letter is the best way to personalize a cover letter. It may be feasible if you have access to word processing equipment (check with your admissions office). If you must print your cover letter, you can add touches to it to make it less cold:

- The name and telephone number of someone to contact should they have questions about the study.
- A signature in contrasting ink, preferably hand signed with a ball point pen so it looks hand signed.
- Individually typed addresses and salutations.
- A P.S., preferably handwritten.
- An offer to send a copy of the results.
- A handwritten follow-up note.

Appendix 3 gives an example of a cover letter that incorporates many of these suggestions.

DO YOU NEED A RETURN ENVELOPE?

Absolutely! Remember the cardinal rules: Be professional and be considerate of your respondent. Asking a respondent to provide his or her own envelope or to fold a questionnaire in a certain fashion and find a stapler or piece of tape does neither of these--and accordingly generates a lower response rate.

The return envelope should be addressed and postage-paid. To do any less tells your respondent you really don't care whether you get his or her response or not. Some researchers have had better luck with a stamped envelope than a metered or business reply envelope. It should be legal-sized so the questionnaire doesn't need to be folded an extra time to make it fit.

An alternative to enclosing a return envelope is to require the student to hand deliver his or her response as a prerequisite to receiving something of value. The most common use of this technique is with surveys of graduating seniors; students are required to hand in a completed survey

before receiving their cap and gown for the commencement ceremony. The disadvantage of this approach is similar to a disadvantage of in-person administrations (covered later in this chapter): respondents may feel forced to do something they would rather not do. Some may falsify their answers as a way of rebelling against the process; others may rush through the survey at the last minute. Both adversely affect the validity of your results.

HOW SHOULD THE QUESTIONNAIRE PACKAGE BE ASSEMBLED?

The envelope your questionnaire, cover letter, and return envelope are delivered in conveys that important first impression. It should have a cleanly typed address or neatly aligned mailing label and an official-looking return address.

When you stuff the envelopes, first discreetly number the questionnaire on a back corner and enter the same number next to the respondent's name on your master mailing list (unless you are conducting a totally anonymous survey). Fold the cover letter and questionnaire accordion-style and slip them in the envelope with the return envelope so that when the respondent opens the envelope, the first thing he or she sees is the top of the cover letter.

WHY DOES THE QUESTIONNAIRE NEED A PILOT TEST?

You probably think that, with all the work you've put in up to now, you've got to have a great questionnaire package, but you couldn't be more wrong! There's bound to be at least one question that's perfectly clear to you but confusing or misleading to respondents. Pilot testing is the most important step in a survey and the one most often omitted by inexperienced researchers.

Pilot tests can be very extensive or very simple. In a full-blown pilot study, the entire survey is conducted just like the "real" one, including designing the sample and collecting, processing, and analyzing the data. This lets you check not only the questionnaire package but the entire research process. Full pilot studies are most often done when a project is very expensive or important.

The simplest pilot test is to hand out the questionnaire to a few people similar to those in your sample (for example, a few students if you are surveying the student body). Ask them not only to complete the questionnaire but also to tell you about any questions or directions they found unclear or ambiguous and how long it took them to complete the questionnaire. This gives you some feedback on your questionnaire but not on the effectiveness of the entire package.

Once your pilot test--simple, complex, or in between --is completed, go over the responses, looking for unexpected or inconsistent answers, and revise your questionnaire accordingly.

WHEN SHOULD THE QUESTIONNAIRE PACKAGE BE MAILED?

The questionnaire should arrive at a time when the respondent is least likely to be busy and tempted to put it off. This generally means timing your mailing so the questionnaire arrives on a Tuesday, Wednesday, or Thursday. Avoid questionnaire arrivals on Friday or Saturday, during midterms or finals, or during holiday or vacation periods.

You may want to consider an advance postcard, mailed four to seven days before the questionnaire. It lets respondents know the mailing they will be getting is an important survey and not "junk mail" to be tossed out unopened.

WHAT SHOULD BE DONE AS THE COMPLETED QUESTIONNAIRES COME BACK?

Each day, count how many questionnaires are returned. Compare the code numbers you put on the back of each questionnaire against your master mailing list and check them off so these people won't receive a second mailing.

You may want to mark each questionnaire with the date of receipt. This lets you look for differences in responses between early respondents and late respondents if that is of concern to you.

WHAT IS AN ACCEPTABLE RESPONSE RATE?

One of the most common questions asked by novice researchers is, "What percent of my questionnaires do I need to get back?" There are both simple and complex answers to this question. The simple answer is that most pros like a 70% to 80% response rate and consider 50% minimally adequate.

The complex answer is that this is almost an irrelevant question for two reasons. The first reason is that, as any good researcher will tell you, <u>quality</u> of responses is more important than <u>quantity</u>. It is more important to have respondents who are generally representative of the group you are sampling from than to have a large return rate.

Here's an example. Let's say you are conducting two surveys of your school's student body. Survey #1 yields

only a 35% response rate, but the respondents match the student body in terms of proportions of freshmen, sophomores, juniors, and seniors; proportions of men and women; and proportions of full-timers and part-timers. Survey #2 yields a 65% response rate, but almost all the respondents are full-time juniors and seniors and are disproportionately male. Most researchers would agree that Survey #1 has yielded "better quality" or more valid responses than Survey #2, despite its lower response rate.

This is why it's important to collect demographic information on your sample, either from the data base you took your mailing list from or from a few questions at the end of the survey.

The second reason that this question is almost irrelevant is, well, suppose that despite your best efforts you only get a 30% or 40% response rate. After all the time and expense you've put in, you're not going to throw out those questionnaires, are you? You'll probably go ahead and analyze the data and simply note the low response rate as a caveat in your final report.

Some of your subjects will undoubtedly have bad or missing addresses on file. Any subjects that you cannot locate should be deleted from your sample and not considered when you calculate your response rate.

ARE FOLLOW-UP MAILINGS WORTH THE TIME AND EXPENSE?

Definitely! A rule of thumb is that each follow-up will get you an additional 50% beyond your previous mailing. Thus, if you get a 40% response to your first mailing, you can expect an additional 20% from your second mailing and another 10% if you do a third--a total response rate of 70%. Follow-up mailings can therefore almost double your response rate.

Another important reason for doing a follow-up mailing is that late respondents sometimes differ from early ones. If this is true for your survey, conducting only one mailing will bias your results.

WHAT FORM SHOULD FOLLOW-UPS TAKE?

Follow-ups can take many forms. You will need to select the appropriate format based on your budget and your need for a high response rate. Some possibilities:

1. Another complete questionnaire package: cover letter (amended to read, "We haven't heard from you yet!"), questionnaire, and return envelope.

2. A reminder postcard or letter, asking respondents to return the questionnaire package mailed earlier. This is cheaper than mailing a complete package but not as effective, since some people may have discarded or misplaced the original questionnaire.

3. A complete questionnaire package sent by certified mail. This can be effective but expensive. Keep in mind that respondents may be inconvenienced and irritated at having to travel to the post office to sign for a "dumb survey".

4. A double tear-off postcard, asking the respondent to complete, tear off, and mail a postcard containing only the most crucial questions. This will generate a higher response rate than a long questionnaire, but preparing "custom" postcards like this can be expensive.

5. A telephone call, either to remind subjects to answer the questionnaire or to ask at least some of the questions over the phone. The feasibility of this varies considerably depending on the nature of your telephone service (Do you have a WATS line? Do students in your dorms have their own phones?) and the availability of staff to make calls.

These formats can be used in combination. You could, for example, follow an initial mailing with a reminder postcard, then with another complete package, and finally with a certified mailing or a phone call. The basic rule: persistence pays off.

WHEN SHOULD FOLLOW-UPS BE MAILED?

This depends on whom you are surveying and how long it will take for mail to reach them. If you are surveying students on campus, you can expect to receive questionnaires three days after you mail them. If you are surveying alumni throughout the country, you will need to allow a week for the questionnaires to get to them and another week for them to be returned.

Here is an example of a follow-up timetable for a survey of currently enrolled students:

Day 1 (Monday): Mail initial questionnaire package.

Days 2 and 3 (Tuesday and Wednesday): Questionnaires are received by students.

Days 4 and 5 (Thursday and Friday): Returns begin coming in.

Day 8 (Monday): Mail reminder postcards to everyone (thanking them if they've returned the questionnaire already).

Days 11 and 12 (Thursday and Friday): Prepare second mailing of complete package to non-respondents.

Day 15 (Monday): Mail second questionnaire package.

Day 24 (Wednesday): Begin telephoning non-respondents.

WHY NOT ADMINISTER THE SURVEY IN PERSON?

When possible, administering a survey to your sample in person has a number of advantages:

1. It is cheaper; you save on envelopes and postage.

2. It is faster; you don't have to wait for the mails to come through.

3. You will get a higher response rate.

4. You will be able to answer unanticipated questions and problems.

There are two problems with in-person administrations, however. The first problem is that you may want to survey a group that is not easily accessible in person: all undergraduates at your institution, alumni, or evening students, for example. Contacting your sample through classes, meetings, etc., will not give you a good random sample of your population.

A second problem is that respondents may feel forced to complete something they would rather not do, and this may affect their responses. If your survey is on a sensitive topic, your respondents may think a colleague might see their responses as they are being completed and adjust their answers accordingly. A respondent who would like to write a lengthy response to a question may feel pressured if he or she sees everyone else has finished.

In-person administrations are nonetheless suitable for a variety of situations, particularly evaluations and exercises collected as part of a class workshop or other group activity.

HOW SHOULD YOU ADMINISTER AN IN-PERSON SURVEY?

Here are some tips that will help an in-person administration yield good quality data:

1. Leave off the cover letter. Prepare instead a statement to read to the group explaining the nature and purpose of the survey and soliciting their help.

2. If you are administering the survey to two or more groups, keep your directions identical from one group to the next.

3. Repeat key parts of your oral statement at the top of the questionnaire.

4. Establish an atmosphere where respondents do not feel trapped, rushed, or otherwise uncomfortable. Don't force anyone to complete the survey.

5. If other people are helping administer the survey, train them carefully so that everyone administers the survey in the same way. Try to anticipate questions so everyone will give roughly the same answers.

6. Provide a large envelope or box for respondents to put their completed questionnaires in and seal it immediately, so confidentiality is preserved.

WHAT TASKS CAN BE DELEGATED TO SOMEONE ELSE?

Once the questionnaire and cover letter have been finalized, most of the tasks in this chapter can be delegated to a clerk or student. Clerks or students can do any of the following:

1. Arrange for duplication of questionnaires, cover letters, and envelopes.

2. Arrange for mailing labels for the outer envelopes.

3. Prepare the first mailing, including numbering the master mailing list and questionnaires with code numbers.

4. Check off respondents as returns come in.

5. Prepare subsequent mailings.

Depending on their skill and aptitude, clerks and students may also be trained to administer in-person surveys. They may also be able to edit and code responses and transfer data onto coding sheets (these are discussed in the next chapter).

Many surveys make ideal independent study projects or internships for students in business, mathematics, education, psychology, sociology, etc. Under your supervision, these

students can do the entire survey (except perhaps for typing, duplicating, and keypunching) from beginning to end.

1. (Most important) Developing a time line to make sure the entire study can be completed in one semester or academic year.

2. Designing and testing the questionnaire and cover letter.

3. Selecting the random sample and arranging for mailing labels.

4. Preparing each mailing and checking off returned questionnaires.

5. Editing and coding the returned questionnaires and writing the codebook. This is covered in the next chapter.

6. Writing a computer program to analyze the data. This is covered in Chapter VI (Analyzing the Survey Data).

7. Writing the final report. This is covered in the last chapter.

WHAT CAN A WORD PROCESSOR OR MICROCOMPUTER DO?

If you have access to one, a word processor or microcomputer can be an invaluable aid with the tasks described in this and earlier chapters:

- Your questionnaire and cover letter drafts can be developed and stored on a word processor or a microcomputer with word processing capabilities.

- Your mailing list can also be stored and maintained on a word processor or microcomputer if it has the capability to generate mailing labels as well as a roster of names and addresses. The microcomputer can assign ID numbers and can keep track of who has returned questionnaires.

- As noted earlier, word processing equipment can generate individually typed cover letters which may enhance your response rate.

- There are now a few statistical software packages available in PC versions (e.g., SAS IBM PC version, SPSS/PC, BMDPC). If you have one of these and enough memory, you may be able to run your data analyses on your microcomputer.

Chapter V.

PROCESSING THE SURVEY RESULTS

Once your questionnaires are being returned, you can begin to process the data to prepare it for statistical analysis. There are three basic steps to processing survey data: editing the responses, coding them, and getting the data "keyed" into a computer. You will then be ready to write a computer program to analyze the data, a task discussed in the next chapter.

WHAT SHOULD YOU LOOK FOR AS YOU EDIT RESPONSES?

Some respondents will not have followed directions properly; others will have marked their answers unclearly or ambiguously. The first step in processing data is therefore to review every questionnaire for inappropriate responses. Use a distinctively colored pen to mark your corrections.

Inconsistent responses. You may have a section that only Business majors were to answer, yet some other majors completed it. Cross out their responses to this section.

Multiple responses. Even though you may clearly ask respondents to check the "ONE best response", some respondents may check two or more answers to a question. There are several ways to handle this:

1. Code all responses. This is usually not preferable because multiple response data is difficult to handle. Also, in doing this you are giving unfair weight to respondents who followed directions incorrectly. Had you given everyone this opportunity, other respondents may have checked more than one response too and changed your overall results.

2. Delete all of the respondent's answers to the question. This is also often not preferable because you will lose data. From an empirical point of view, however, it is the most valid way to handle this situation, because you have no way of knowing which one response the respondent would have selected had he or she followed directions correctly.

3. Choose one response at random and cross out the others. This is often preferable because you will salvage at least some information. Just make sure you choose the response randomly; don't always code the first response checked.

Responses outside given categories. Suppose you have some items with possible responses of "Excellent," "Good," "Fair," and "Poor," and someone checks midway between

"Excellent" and "Good". Your choices here are either to delete the response altogether or to recode the response randomly to either "Excellent" or "Good".

"Other" responses that really aren't. Some respondents will check an "Other--please specify" response when in fact one of the given responses suits them. Read all the "Other --please specify" comments and recode as necessary.

WHAT IS CODING?

Coding responses means changing every answer into a number, set of numbers, or some other character or symbol. A response of "yes" may be coded "1", for example, "no" may be coded "2", and "unsure" as "3". Coding is done because codes make it much easier for a computer to analyze data.

HOW SHOULD RESPONSES BE CODED?

Questions in which the respondent chooses the ONE best answer. Generally assign each possible answer a number and code accordingly.

Example	Code
Question 7. What is your class level?	
___ Freshman	1
___ Sophomore	2
___ Junior	3
___ Senior	4

In this example, a respondent checking "Junior" would be coded "3".

Questions in which the respondent checks all the answers that apply. For coding purposes, these questions must be treated as a series of yes/no questions.

Example	Code
Question 8. What influenced you to apply to Aloysius College? Check all that apply.	
___ High school guidance counselor	Question 8A. Code "1" if checked.
___ "College night"	Question 8B. Code "1" if checked.
___ Visit to campus	Question 8C. Code "1" if checked.
___ Admissions brochure	Question 8D. Code "1" if checked.

Each response is coded as if it were a separate question. Checked responses are usually coded "1"; other responses are either coded "0" or left blank.

Open-ended questions. Coding answers to these questions (e.g., "What one thing do you like best about Northern University?") is a more subjective task than coding the questions discussed above. Here is a suggested guide:

1. Quickly read through the responses and make a list of the categories they fall into.

2. Read through them a second time, making sure each response can be assigned to one and only one category.

3. Go through the responses a third time, this time coding them.

4. Ask someone else to go through your coding and see if he or she agrees with it.

To keep coding consistent, the entire set of responses to any one question should be coded by one person. The coding should then be reviewed by someone else to help prevent bias.

WHAT GENERAL CODING PRINCIPLES SHOULD BE FOLLOWED?

Here are some general guidelines:

1. Use numbers rather than letters or symbols (for example, code "female" as "1" rather than "F"). Many computer programs cannot analyze non-numeric codes or can only do so on a limited basis.

2. Leave blanks blank. Don't code them as zero or "999".

3. Avoid using zeros as codes. On some systems zeros and blanks are read the same way.

4. Use identical codes for questions with the same set of responses. For example, if you code one question using 4 for "strongly agree," 3 for "agree," 2 for "disagree," and 1 for "strongly disagree," use this coding scheme for all such questions.

5. Try to use numeric codes in a logical order. Coding "yes" as 1, "don't know" as 2, and "no" as 3 puts the answers into a continuum of sorts.

6. Don't code decimal points, dollar signs, commas, etc. This wastes coding time and computer space. The computer data analysis program can reinsert these symbols later.

7. Don't collapse categories to simplify your data analysis. The computer can do this for you later.

HOW ARE THE CODED DATA ENTERED INTO THE COMPUTER?

To understand the whys and wherefores of getting coded data into a computer, let's look at common conventions for storing data in a computer:

1. Generally all the data on one respondent should fit onto one line or computer card. Each line is usually 80 to 120 spaces long.

2. Each space on the line holds one digit, symbol, or character (like the spaces on a typewritten line). Each space is called a "column".

3. Each answer is generally in the same location from one line to the next. If your code for Question 7 is in Column 27 for one respondent, for example, the codes for all respondents' answers to Question 7 should be in Column 27.

These rules can be broken, especially with more modern computer systems, but to be safe it is best to follow them.

Coded data are entered into the computer by data entry clerks who either keypunch the data onto cards to be fed into the computer or type the data directly into the computer at terminals. Data entry clerks work at very high speeds and, since they are probably unfamiliar with your work, must be able to read your codes explicitly.

You can communicate your coded data to the data entry clerks in one of two ways: by transferring the data onto coding sheets for the data entry clerks to type from, or by putting data entry instructions directly on the questionnaires and sending them directly to your computer center for entry. We will discuss both.

WHAT ARE CODING SHEETS AND HOW ARE THEY PREPARED?

A coding sheet (usually available in pads from your computer center) looks like a big piece of graph paper, usually 80 boxes across and 25 or so down. Data is written onto a coding sheet, one character per box, in exactly the format you want it entered into the computer. (Question 7 codes in Column 27, Question 8 codes in Columns 28-29, etc.)

Before you start writing your coded responses onto coding sheets, take a few moments to design the sheet's layout:

1. As mentioned earlier, try to fit each respondent's data on one line.

2. Use the first few columns to code your respondents' ID numbers. Sequence your ID numbers starting with 101 rather than 1.

3. If you have more than one line of data per respondent, use the next column for the line number.

4. Use the next columns to code data you have collected about the respondents other than their questionnaire responses (e.g., sex, major, geographic origin, grade point average).

5. Use the remaining columns for questionnaire responses. Most questionnaire responses will need only one column each. Items with more than ten possible answers will need two columns. Items asking respondents to write in a figure (e.g., how much they spends on books each semester) may also need more than one column. Checklist or multiple response items need one column for each possible answer.

6. Avoid blank columns between answers. Data entry clerks work much faster typing a string of digits than a series of digits and spaces.

When you transfer your data onto coding sheets, use ink, not pencil--it's easier for the clerk to read. (If you make a mistake, just draw a heavy line through that line of coding and start over on the next line.) Print neatly (a "7" can be confused with a "Y", for example) and use capital letters for all alphabetic codes. Draw a slash through the letter O (Ø) to distinguish it from a zero and make sure the letter I is distinctly different from the number 1. Some people also draw a line through the letter Z (Ƶ) to distinguish it from a 2.

HOW CAN DATA ENTRY INSTRUCTIONS BE PUT DIRECTLY ON A QUESTIONNAIRE?

Many questionnaires can be printed with column and code numbers so that, after editing and perhaps coding a few open-ended items, the questionnaires can be sent directly to the computer center for data entry. Sometimes "op-scan" sheets can be used. The advantage of these approaches is that they save you and your staff considerable coding time. But, as discussed in Chapter III (Developing the Survey Instrument), some respondents may think that their question-

naires will go directly to a computer and that no one really cares about their individual responses, particularly written-in ones. Others may find the codes or op-scan format make the questionnaire confusing. For these reasons, use data entry codes or op-scan sheets in the limited circumstances described in Chapter III.

There are other disadvantages to pre-coded questionnaires and op-scan sheets. The chances for data entry error are greater. The temptation to skip editing is great, especially when using op-scan sheets which make editing difficult. And as you or your staff code data, you will undoubtedly catch problems that you missed when you edited the responses. Data entry clerks, most likely unfamiliar with your study, will not know how to deal with these problems. They will therefore either misread and miscode the data or stop work until they can find you and ask you about the problem.

There is also something to be said for "getting your hands into the data," and nothing will do this like coding data yourself (or having a staff member familiar with the study do it). Coding forces you to look at every response, giving you new insight into your data and helping you interpret your results. You may observe unanticipated interrelationships among responses, for example, or notice firsthand that one item didn't quite work right and should be discarded.

Pre-coded questionnaires are nonetheless useful in some circumstances. Codes may be printed on the questionnaire as follows:

Multiple choice questions:

What degree are you seeking?
(8)

1 ___ Not seeking a degree
2 ___ Associate degree
3 ___ Bachelor's degree
4 ___ Master's degree

The data entry clerk would key in a 1, 2, 3, or 4 in Column 8, depending on the response checked.

Checklists simply need the column numbers:

> In what business subjects would you be interested in taking courses?
> (34-39)
>
> ___ Accounting
> ___ Economics
> ___ Finance
> ___ Law and Business
> ___ Management
> ___ Marketing

Here the data entry clerk would key in a 1 in Column 34 if the respondent checked Accounting, a 1 in Column 38 if the respondent checked Management, etc. Unchecked spaces would be left blank.

Grids like Likert scales and semantic differentials can also include coding instructions:

How would you rate...	Very good 4	Good 3	Fair 2	Poor 1	
Advisement?	___	___	___	___	(17)
The library?	___	___	___	___	(18)
The quality of the labs?	___	___	___	___	(19)
Faculty teaching ability?	___	___	___	___	(20)

Here the data entry clerk would key in a 1, 2, 3, or 4 in each of Columns 17-20 depending on the response checked.

If you decide to use a pre-coded questionnaire, first prepare a coding layout, just as if you were going to use coding sheets. Then mark the codes on your draft questionnaire and ask a data processing expert to review it for feasibility and clarity. Be sure to provide space and instructions for entering ID numbers and other information you have collected about the respondents.

A good data entry professional may be able to help you design a questionnaire that data can be entered from without pre-printed coding instructions. Discuss this possibility with your computer center.

WHAT IS A CODEBOOK?

A codebook is a few pages on which the coding scheme and layout are documented. It is used to communicate this

important information to your staff, your editors and coders, the data entry clerks, and your programmers to minimize confusion and misunderstandings. It is also invaluable if you decide to repeat your study or do a follow-up on it.

A codebook lists the name of every piece of information you are putting on the computer, which column(s) it is located in, its format (numeric, alphabetical, etc.) and the meaning of each code. Here is an example:

Data element	cc	Format	Codes/Other information
ID number	1- 3	999	
Sex	4	A	M = male
			F = female
Grade point avg	5- 7	9V99	
Question 1	8	9	1 = Yes
			2 = Unsure
			3 = No
Question 2	9-10	99	Amount spent on food

Some notes about this example:

1. "cc" means Columns. Sex is in Column 4; Question 2 is in Columns 9-10.

2. The Format column uses "computerese" notation: "9"s are used to show the data are numeric; a "V" is inserted wherever a decimal point should go. This tells the computer programmer, for example, that a grade point average stored in the computer in Columns 5-7 as "326" should be read and printed as "3.26".

Chapter VI.

ANALYZING THE SURVEY DATA

The advent of computers and statistical computer "packages" such as SPSS has brought a myriad of statistical analysis techniques to the fingertips of even the novice researcher. While this capability gives the researcher a great deal of power, it also means he or she can be overwhelmed with the plethora of statistical analyses available. This chapter is designed to help you make your choices. It has been written for those with at least a modest familiarity with statistical techniques. If you are a novice with statistics, we suggest you find a statistical consultant (perhaps a faculty member) to help you analyze and interpret your data.

Before you choose your analyses, you need to know what kind of data you have: nominal, ordered, or interval (See Chapter I for explanation of those terms.) You also need to know what information you would like from your data. In particular, you need to decide if you simply want to describe your group or if you want to try to explain why your group responded or behaved in a particular way. Describing is a simpler task for explaining, so we'll discuss that first.

DO YOU SIMPLY WANT TO DESCRIBE YOUR GROUP?

If you want to describe your group with a chart or graph of responses, use the chart below to choose the appropriate method.

What do you want to do?	What kind of data do you have?	Use this method
Examine the responses of one group to one question	Interval or ordered	Frequency distribution, bar graph, line graph
	Nominal	Frequency distribution, bar graph, line graph
Compare the responses of two groups to one question	Any kind	Paired frequency distributions or graphs
Compare the responses of one group to two questions	Interval	Scattergram
	Ordered or nominal	Cross tabulation table

If you want to describe your group with statistics, use the chart below to choose the appropriate statistics.

What do you want to describe?	What kind of data do you have?	Use this statistic
The average response	Interval	Mean or median
	Ordered	Median
	Nominal	Mode
The spread or variability of responses	Interval	Standard deviation
	Ordered	Semi-inter-quartile range or range
	Nominal	Proportion falling outside mode
The degree of the relationship between two responses	Interval	Pearson's product-moment correlation coefficient
	Ordered	Spearman rank-order correlation coefficient Kendall tau coefficient
	Nominal	Cramer's index of contingency
The degree of relationship among three or more responses	Interval	Multiple correlation Partial correlation
	Ordered	Kendall partial rank correlation

HOW WELL DO YOUR SAMPLE RESULTS CORRESPOND TO THE VIEWS OF THE ENTIRE STUDENT BODY?

When researchers analyze survey data, we want to be able to assume that our sample results are similar to those we would get if we were able to survey every student. Suppose, for example, that we surveyed 400 students and found that 58.2% of them are "satisfied" with the current registration process. We would like to be able to say that 58.2% of all students at our college are satisfied with the registration process.

Assuming we surveyed a random sample of students, can we say this? No! It's very unlikely that exactly 58.2% of the entire student body is satisfied with the registration process. It's possible that the overall percentage is really 58.6%, 57.9%, maybe even 63.1%. This discrepancy between our 58.2% and the true percentage is called sample error (first discussed in Chapter I.) It is not really an "error", just an phenomenon that exists because even a good random sample is unlikely to match precisely the results from the results from the entire group.

When reporting your results, you will sound much more professional and credible if you mention the possible sample error of your findings. For example, instead of simply saying "58.2% of students are satisified with the registration process, "say, "58.2! of students are satisfied with the registration process with an error margin of plus or minus 6%." Statisticians know this means that you are 95% sure that between 52.2% and 64.2% of students are satisified with the registration process.

HOW IS THE ERROR MARGIN CALCULATED?

When are you reporting percents, this formula will give you a good estimate of the error margin:

$$\frac{/1}{/n} \times 100\% \quad \text{where n = your sample size}$$

In the example above, we surveyed 400 students so the error margin was $\frac{/1}{/400} \times 100\% = /.0025 \times 100\% = .05 \times 100\% = 5\%$

While you can use this formula to find the error margin of any percentages you have, it will slightly overestimate the error margin of percents close to 0% or 100%. If you want a more accurate error margin in these cases, look in any statistics textbook for a discussion of "confidence intervals for proportions."

Error margins can also be calculated for means, for differences between two means, and for differences between two proportions. To find out how, again look in any statistics textbook for "confidence intervals."

DO YOU HAVE TO TRY TO EXPLAIN WHY YOUR GROUP RESPONDS OR BEHAVES IN A CERTAIN WAY?

This is a more interesting kind of analysis than simply describing your results. Statistical analyses are available to help you answer the following kinds of questions:

- Is my group difference from an established or theorized norm?
- Is my sample truly representative of my population?
- Are two or more subgroups different from each other?
- Are two or more responses from my group different?
- Has my group changed over a period of time?
- Are there any interrelationships among my group's responses?

The statistical analyses that answer these questions are hypotheses tests. Hypothesis tests follow five steps:

1. An hypothesis is made about the results. To keep things simple, the hypothesis is usually that there is no difference, relationship, etc., even if you're actually hoping or expecting that there will be a difference.

2. The hypothesis is initially assumed to be correct.

3. A statistical analysis is done to find out the probability of getting our sample results if the hypothesis is true.

4. If there is a reasonable probability that we'd get our sample results, we conclude the hypothesis may be true and that there is no evidence of a difference, relationship, etc.

5. If it's very unlikely (usually less than 5% chance or a 1% chance) that we'd get our sample results, either our sample results are wrong or the hypothesis is wrong. Since our sample data are from a well-planned, valid study (this is why it's important to have a valid study!), we conclude that the hypothesis is wrong and that there is a "significant" difference, relationship, etc.

The rest of this chapter is a guide to choosing the statistical analyses most appropriate for your data and the questions you have about them. As we've mentioned before, if you are a statistical novice, you may want to ask a statistical consultant to help you choose your analyses and interpret them.

DO YOU WANT TO SEE IF YOUR GROUP IS DIFFERENT FROM AN ESTABLISHED NORM OR A THEORIZED VALUE? OR DO YOU WANT TO SEE IF YOUR SAMPLE IS TRULY REPRESENTATIVE OF YOUR POPULATION?

Your might want to see, for example, if students at your school differ from the national norms.

If your data are interval, use a t-test for one mean.

If your data are ordered, use a Kolmogorov-Smirnov one-variable test.

If your data are nominal, use a chi-square test for goodness of fit or a t-test for one proportion.

DO YOU WANT TO SEE IF TWO OR MORE SUBGROUPS ARE DIFFERENT FROM EACH OTHER?

You might want to see, for example, if there's a difference between men and women or among freshmen, sophomores, juniors, and seniors. Use the chart below to choose the appropriate analysis.

What kind of data do you have?	How many subgroups do you have?	Use this analysis
Interval	Two	t-test for two independent means
	Three or more	one-way analysis of variance
Ordered	Two	Mann-Whitney U test
	Three or more	Kruskal-Wallis one-way analysis of variance
Nominal	Two	t-test for two proportions
	Two or more	chi-square test of association

DO YOU WANT TO SEE IF TWO OR MORE RESPONSES FROM YOUR GROUP ARE DIFFERENT? OR DO YOU WANT TO SEE IF YOUR GROUP HAS CHANGED OVER A PERIOD OF TIME?

You might want to compare for example, your student's ratings of the math department and the computer science department to see if they differ. Or if you have been following a group of alumni over a period of time, you might want to compare their perceptions five years ago. Use the chart below to choose the appropriate test.

What kind of data do you have?	How many responses do you want to compare?	Use this analysis
Interval	Two	t-test for matched pairs
	Three or more	one-way analysis of variance
Ordered	Two	sign test
		Wilcoxon matched pairs signed ranks test
	Two	Friedman two-way analysis of variance
Nominal	Two	McNemar test for significance of changes
	Three or more	Cochran Q test

DO YOU WANT TO LOOK FOR INTERRELATIONSHIPS AMONG YOUR GROUP'S RESPONSES?

The analysis you choose will depend on the kind of data you have and the kind of relationship you wish to examine. Sometimes researchers are interested in the interrelationship among two or more responses. More often, however, they are particularly interested in the relationship of one or more responses to <u>one particular</u> response or factor. A researcher might want to study, for example, the relationship of several questionnaire responses to:

- Grade point average
- Whether or not a student drops out
- Whether or not a student flunks out
- Responses to one question asking for overall satisfaction with Northern College

DO YOU WANT TO STUDY THE RELATIONSHIP OF SEVERAL RESPONSES TO ONE PARTICULAR RESPONSE OR FACTOR?

You can use multivariate analysis of variance, regression analysis, or discriminant analysis to do this.

If you want to study the relation of two or more nominal responses to one interval response, use multivariate analysis of variance. This analysis would be used, for example, if you wanted to study the relation of sex, age group, and major to grade point average.

If you want to study the relation of one or more interval responses to another interval response, use regression analysis. This analysis could be used, for example, if you wanted to study the relation of several interval responses to responses to one question asking for overall satisfaction with college.

If you want to study the relation of two or more interval responses to one nominal (usually bivariate) response, use discriminant analysis. This analysis would be used, for example, if you used several interval responses to distinguish between students who drop out and students who return.

If all the data you're studying are interval, you have a real choice between analysis of variance and regression analysis. Consider these points as you make your decision:

Analysis of variance is actually a broad term covering many different kinds of analyses. You can look for differences among several responses made by one group, differences in responses among several subgroups, or simultaneously examine differences within and among subgroups. You can also use Scheffé contrasts to see how the responses affect the response you're most interested in. For more information on these kinds of analyses, consult a textbook on experimental design.

Regression analysis restricts you to one group but gives you a lot more information. In particular, it lets you predict

the response of most interest to you from the other responses you're studying. You might predict grade point average, for example, from responses to several interval questions. Regression analysis will also let you measure the accuracy of your predictions and give you information on the relative importance of several responses to the response of most interest to you.

DO YOU SIMPLY WANT TO EXAMINE THE RELATIONSHIP AMONG TWO OR MORE RESPONSES?

You can use correlation tests, chi-square tests, or factor analysis to do this.

If you want to see if there is a relationship between two interval responses, use Fisher's z test for the Pearson correlation coefficient.

If you want to see if there is a relationship between two ordered responses, use a test of significance for Spearman's correlation coefficient.

If you want to see if there is a relationship between two nominal responses, use a chi-square test of association.

If you want to study the interrelation among a large set of interval responses, use factor analysis. It "reduces" the responses into factors or components. Researchers use factor analysis to (1) explore relations among responses, (2) test hypotheses or theories about what the interrelationships should be, and (3) reduce a large number of responses to a manageable few for further study.

HOW SHOULD CENSUS DATA BE ANALYZED?

Virtually all the statistical analyses presented in this chapter are inferential statistics, designed to be used to make an inference from a sample to an entire population. What if you have conducted a census, collecting data on everyone in your group rather than just a sample? There are three schools of thought on how to handle this:

1. Since the data are from a census, they are completely accurate. Any difference, however small, is a real difference and therefore significant. No inferential statistics--hypothesis tests or error margins--are called for.

2. Although the data are from a census and all differences are therefore statistically significant, some

differences may not be large enough for practical significance. Hypothesis tests and error margins help eliminate the very small differences with no practical significance.

3. Although the data are from a census at one point in time, they are being used to make inferences about slightly different future populations. A census of the Fall, 1988, student body, for example, might be used to make decisions affecting the Spring, 1989, student body, which would be somewhat different. Under such circumstances, the Fall, 1988, student body would be considered a sample of all students, present and future. Inferential statistics including hypothesis tests and error margins are therefore appropriate.

WHAT ELSE SHOULD YOU CONSIDER AS YOU CHOOSE YOUR ANALYSES?

Perhaps the most important thing you should keep in mind is that even statistical experts often disagree on the most appropriate analysis for a given set of data. Don't let this chapter dictate what to do. If you have doubts about the appropriate analysis for a particular situation, consult some statistics textbooks or someone knowledgeable about statistics.

Another thing to keep in mind is that the analyses listed here can be used with "higher level" data. Analyses suggested for nominal data, for example, can be used with ordered or interval data. Analyses suggested for ordered data can be used with interval data as well.

This often gives you a real choice among analyses. In most cases, the preferable analysis will be the parametric one designed for interval data. Parametric analyses usually have the following advantages:

1. They are the most well known. Your reader is more likely to be familiar with analysis of variance than the Cochran Q test, for example. Using a familiar test will make your results easier for your reader to understand.

2. They usually provide more information. Most of them, for example, are designed to provide information on why individuals vary from the mean. This information can be very helpful in understanding your results.

3. They are more powerful. This means that when you decide that there is no significant difference, relationship, etc., you have a better chance of being right than if you've used an analysis designed for nominal or ordered data.

4. They are more robust or flexible. While they are usually based on assumptions about the data, the assumptions can often be violated without affecting the validity of your results. Many of these analyses can be used, for example, with ordered data even though they are designed strictly for interval data. Analysis of variance technically assumes that each set of responses you are comparing comes from a separate group, but it is robust enough that you can use it to compare three or more responses from one group.

Don't forget, by the way, that bivariate data can be treated as interval data. You can often convert one nominal response into a set of bivariate (yes/no) responses in order to use an analysis designed for interval data.

A final note: Many of these analyses have limitations and restrictions to their use beyond what could be gone into here. Before you use any of these tests, read up on them in a statistics textbook to make sure the ones you choose are appropriate to use with your data.

WHAT ELSE SHOULD GO INTO THE DATA ANALYSIS COMPUTER PROGRAM?

The data analysis program should have several additional elements:

1. A listing of the raw data. This will help you find and correct coding and punching errors.

2. Edit checks. Always ask for frequency distributions of every response. This will give you a quick picture of your data and help you identify bad data or codes. You may also want to ask for two-way tables ("cross-tabs"), showing the frequency distributions of two items together, to identify inconsistent answers. For example, you might want to compare sex and participation in men's and women's sports.

3. Reliability and validity checks. Making reliability and validity checks of your items was discussed in Chapter III (Developing the Survey Instrument). Include a check on the "representativeness" of your sample respondents. Plan to compare the characteristics of your respondents (e.g., proportions of men, freshmen, business majors) with known characteristics of the group you took your sample from.

4. Data transformations. You will want to make a few minor changes to your data before you analyze them:

- Identify missing data. Blank or missing data should be

clearly identified and then deleted from data analysis. An important exception: blanks in checklists are valid responses and should not be identified as missing.

- Reverse inversely coded items. If you have a Likert or semantic differential scale, probably some items are positive and others are negative. If you coded the response columns 1, 2, 3, and 4, have the computer reverse the codes of the negative items (changing 1 to 4, 2 to 3, 3 to 2, and 4 to 1). This will make it easier to compare responses.

- Create new variables. You may want to "collapse" some categories that few people fell into, add up several numbers to a total, and so on.

5. Data labeling and documentation. Provide plenty of labels, headings, and so on so your printout will be easy to read. Put in enough notes that your data transformations will be easily understood.

WHAT "PACKAGES" ARE AVAILABLE TO ANALYZE THE DATA?

A large number of statistical "packages" are available to analyze data on a large "mainframe" computer or minicomputer, including SPSS, SAS, BMDP, and Minitab. Inquire which are available at your computer center. Most of these are easily self-taught, especially if you have ever done any programming, and there is almost certainly someone on your campus familiar with them and able to help you.

As discussed in Chapter V (Processing the Survey Results), there are also statistical software packages available for microcomputers. Since they are generally interactive, you do not actually "write" the program before you run it, but you should still plan what you will do before you sit down at the terminal. If you have access to both a microcomputer and a mainframe, keep in mind that there are two limitations to using a microcomputer for analysis of survey data:

1. The microcomputer may not have enough memory to store all your data or to run more sophisticated statistical analyses such as factor analysis.

2. The data will probably need to be typed in by you or your staff rather than a data entry clerk, and it is a tedious, time consuming job.

Microcomputer software is therefore best for analyzing the results of relatively small surveys, such as workshop evaluations or surveys of students in just one department.

HOW SHOULD THE DATA BE STORED?

Your data will need to be stored in such a way that you preserve the confidentiality of your respondents' answers and don't betray their trust. There are actually three sets of data to be stored securely: the master mailing list, the questionnaires themselves, and the coded data.

The master mailing list, the one that relates respondents' names to their ID numbers (and thus links names with responses), should be stored very securely. Don't leave it on a computer file if there is any chance of an unauthorized person accessing it.

The questionnaires should be saved because the written-in responses will be useful in interpreting data analyses, writing the final report, and answering questions from people who read the final report. If the questionnaires have identifying information on them (e.g., social security numbers), they should also be stored securely.

Computerized data may be stored on computer tape, disk, or cards, depending on the preference of the computer center. Once the data have been thoroughly checked and edited, you may want to ask to have the ID numbers "stripped" (deleted) to guarantee the confidentiality of the data even further. If you are using a microcomputer to analyze your data, put the data on a floppy disk and store it in a locked cabinet when you're not using it.

Chapter VII.

REPORTING THE SURVEY RESULTS

The final aspect of conducting a survey is to communicate the findings clearly and accurately so that they can be used for decision making. Your report will need to be planned as carefully as any other part of the survey research process, considering who your audience will be and what its needs are.

WHO WILL READ AND USE YOUR FINDINGS?

Before you begin any writing, you should know whom you are addressing. Ask yourself:

1. Will your readers already be familiar with what you have been doing, or will they need a complete description of what was done?

2. Do they have time to study an extensive report or will they want only a short summary?

3. Will they want only your findings and recommendations or will they want to know how you arrived at your conclusions?

4. Are they knowledgeable about empirical research methodology or will you need to explain what you did in layperson's language?

5. Are they likely to criticize the study? Will you need to anticipate their criticisms and incorporate responses into your report?

6. Are they likely to be questioned about the study by others? Will they need sufficient details to respond to others' concerns?

IN WHAT FORM DO YOUR READERS NEED THE FINDINGS?

As you plan and write your report, you will have to wrestle with two seemingly contradictory needs of your readers: that your report be the essence of brevity yet include all the details they consider important. Your primary challenge will be to reconcile these two disparate needs.

Here are some of the forms your report may take, depending on which is more important to your readers--their need for brevity or their need for information--and how

knowledgeable and interested they are in empirical research:

A few tables summarizing your findings. If your readers are already familiar with your study, it may be sufficient to make up a few tables highlighting your principal findings and pass them around. But some people have difficulty understanding tables, and your charts may not be all that clear. In such cases, a couple of brief explanatory paragraphs accompanying your tables may make a much better report.

The executive summary. This is a one or possibly two page summary of your study. It's a distant cousin of the abstract used in scholarly research. The major difference is that, while an abstract summarizes the entire study, the executive summary emphasizes your findings, especially those that will be of most interest to decision makers.

An executive summary should be the first page of any lengthy report sent to busy people. It can also be sent out alone, with an offer to provide the complete report on request (you'll be surprised how few people take you up on your offer).

The executive summary may be widely read and quoted. It's therefore important to select carefully the points to be communicated in the summary and to do so in a form that is attractive and easy to understand.

A complete report. Most survey research projects require a complete report that documents what you did, why you did it that way, and all your findings and conclusions. Some of your readers will want a complete report, if only to have on file or to skim for parts of interest to them. Even if the complete report is sent to no one, it should be prepared and kept in your files to answer any questions and to serve as a resource should anyone decide to conduct further research on the topic. If your study was funded by anyone, the sponsor should get a complete report.

A short report. Sometimes a shorter version of the full report is needed to provide more detail than the executive summary without burdening readers with a full report. If your complete report runs more than ten pages, you'll probably need a short version of it to get your message across to decision makers.

Supplemental reports. These are an excellent way to get some of the nuances and details of the study to only those people who would be really interested. For example, suppose you are doing a survey of student satisfaction with your college. You might send only to the student life

staff details of the findings on satisfaction with dorm life. You might send only to the computer center staff or computer science faculty details of the findings on satisfaction with computer access.

An oral presentation. This can be a very effective way to share your study with people who want only highlights and don't like dealing with tables of statistics or dry text. You may have difficulty, however, in convincing the "powers that be" to give you time to make your presentation. Try distributing an executive summary first and then asking to make a presentation.

If you make an oral presentation, remember that even though you found your project fascinating in every detail, your audience probably won't. By keeping your remarks short and informal, concentrating on your findings, and allowing for questions, you will be able to hone in quickly on the areas of major concern to your audience. (If they want to know more about how you did the survey, they'll ask.) A few handouts or overhead transparencies will be appreciated, provided they are kept simple, uncluttered, and readable.

More than one report. You may need to plan different reports for different audiences. You may prepare a complete report with an executive summary for chief decision makers, a shorter report to the faculty discussing only those findings of direct interest to them, a very brief summary for the public relations office to use in press releases, and an oral presentation to a committee or task force.

WHAT ARE THE COMPONENTS OF A SURVEY RESEARCH REPORT?

A complete report should include each of the following elements:

A meaningful title. Often the title alone must convince your audience to read your report. Your title should therefore explain what your report is about and help convince them to read it. "Student Survey Results" says nothing; "Factors Related to Student Attrition" says much more. Questions ("Why Do Students Drop Out?") can pique readers' curiosity. (Make sure they can quickly skim the report and find the answer!) Some of the best titles condense the principal findings of the study: "The Impact of Faculty/Student Interactions in Reducing Student Attrition".

An executive summary gives a quick overview of the purpose of the study and how it was done and highlights

principal findings and implications. Be careful to reflect the results accurately in this summary. The temptation to oversimplify or overreach for meaning is great and, as noted earlier, the executive summary is likely to be widely circulated and quoted.

The purpose of the study. To orient your reader, you should explain why the study was done and what it was designed to find out. This may be only a sentence or two.

Depending on the nature of your study and your audience, you may want to include some background information to help orient your reader further. If you are doing a survey related to student attrition, for example, you may want to give a brief summary of the literature on factors related to student attrition. If you are doing a survey related to some other campus problem, you may want to give a brief history of circumstances leading up to the study.

How the study was done. Write at least a few sentences explaining how your data were collected. The following points are crucial for the reader to decide on the validity and usefulness of your results and should be included in any report, short or long:

1. The group you took your sample from (e.g., all full-time freshmen as of Fall, 1987).

2. How the persons contacted were selected.

3. The number of people contacted, the number responding, and the response rate.

4. Any evidence that the people who responded are an unbiased sample of the group you wanted to survey.

5. Whether the questionnaire was distributed by mail or in person.

6. The date the survey was conducted.

7. Any caveats that readers should keep in mind as they interpret the findings. These might include notes about a low response rate, a response group that is not quite representative of the overall group you wanted to survey, or anything that has happened since the survey was conducted that might affect results were it repeated today.

Results. This is the part of your report that most readers will concentrate on. Since it is also the most complicated, it requires careful thought and planning so that it may be clearly understood by all your readers,

regardless of their knowledge of research methods and statistical analyses.

Your readers will find your results easier to follow if they are broken into clearly labeled sections:

An overall descriptive summary of your results. This is the part of your report that most readers will concentrate on. It therefore requires careful writing to keep it clear.

Since "a picture is worth a thousand words", the best way to communicate your basic findings is to include a copy of the actual questionnaire with the results filled in. If you don't include the actual questionnaire, the questions that produced the results should be quoted exactly, since small differences in wording can produce large differences in responses.

For many items on the questionnaire, you'll want to fill in the percent who checked response A, the percent who checked response B, and so on. Do not give the number of people who checked A and the number who checked B; these figures are meaningless. Convert your counts into percents; most people are more used to dealing with them than decimals.

For some questions you may want to fill in a mean or median response. It is particularly helpful to report mean or median responses from rating scales. This lets sharp readers quickly compare responses to find out which item had, say, the highest rating. Some readers may similarly appreciate standard deviations, since these tell them which items had the most consistent and inconsistent ratings.

Regardless of whether you report means, medians, or percents, round your figures to the nearest whole number. Few readers will care that 10.3% said X and 10.4% said Y; many will appreciate the increased readability of rounded statistics. To the "mathophobes" in your audience, overly precise statistics merely increase the number of figures they must examine. Unrounded numbers also encourage unsophisticated readers to focus on trivial differences.

You might want to include some "typical" responses to open-ended questions in this section.

While this first section should be statistically simple, it should include the margin of error discussed in the previous chapter. This figure is essential for your readers to judge which differences are truly meaningful.

More detailed results. If your results are at all extensive, the next sections of your report should give your findings for subgroups, findings of interest to only a few readers, and special analyses such as correlations among responses and results of statistical tests.

These sections should be clearly labeled so that readers can skip them if they like. Headings should describe the point of the analysis ("Factors Affecting Grade Point Average") rather than the analysis itself ("Results of Multiple Regression Analysis").

Unless your entire audience is expert in statistics, describe any sophisticated statistical analyses (e.g., analysis of variance) in layperson's terms.

Avoid the temptation to report every single statistical analysis you conducted. If it doesn't make a meaningful contribution to your conclusions, leave it out.

These are not the sections for subjective dicussions or interpretations. Although people may be interested in your opinions about the results, they have the right to be able to look at the pure data, unsullied by anyone's beliefs, and draw their own conclusions.

Tables and graphs. You will probably do a much better job of communicating your findings to your readers if you present some of the data in tables or graphs. A well-constructed table will permit the reader to quickly and easily find and compare figures of interest to him or her.

A picture is worth a thousand words, however, only if it is a good one! Most tables and graphs are so poorly designed that they hinder rather than help understanding of the data. Here are some tips:

1. Give each table and graph a self-explanatory title. "Responses to Question 21" won't do it!

2. Label each part of the table or graph clearly. Label each table column and each graph axis. Avoid abbreviations and avoid writing labels vertically.

3. Since some readers will read the table or graph without reading the text, make it self-explanatory. Give definitions, assumptions, and notes in footnotes at the bottom of the table.

4. Avoid putting too much information into one table. If you find you must insert vertical lines into your table to make it clear, you have too much data. Break your

information into two or more tables, or simply delete some of it from your report.

5. Don't confine yourself to presenting your results in the order of the original questionnaire. Present checklist or multiple choice results ranked with the most frequently chosen answer at the top, where the reader can quickly find it.

6. Don't assume a computer-generated table or graph is readable. Some computer programs generate distorted tables or graphs; most provide poor labels if any; some include bits of "computerese" that can't be deleted.

For an example of a good format for a clear table, see the American Psychological Association's Publication Manual.

Conclusions and recommendations. In this section, draw your conclusions from your findings and your statistical analyses. Your conclusions should clearly relate your data to the questions addressed by your study and described in the introduction to the report.

This section may also include the following:

1. Speculations on possible reasons why your findings turned out the way they did. Do this only if you don't mind being wrong! Discuss your ideas with colleagues before you include them to make sure they make sense.

2. Recommendations for actions that might be taken based on your findings. Institutional researchers have strong disagreements about whether it is their place to make recommendations. Recommendations do help drive home the major conclusions from your study, but they can also create problems for you. By implying that something can be improved, recommendations imply that something is presently not as good as it should be, and this is very likely to offend whoever is responsible for that area. Unfettered recommendations can result in challenges about the quality of your research and a serious undermining of your credibility.

If you don't want your recommendations to get you in trouble:

- Praise as well as criticize. Include a positive conclusion for every problem you uncover.
- Keep your recommendations uncontroversial ("More encouragement for student independent study projects is needed.").

- Confirm an already accepted problem ("More parking space is urgently needed.").

- Phrase your recommendations gently. Rather than say "The college should provide more activities on weekends," say, "Further research may be needed into the appropriateness of the college's weekend activities."

- Don't phrase your recommendations in such a way that anyone reading them might feel threatened or defensive. Avoid pinning blame on any one department.

- If your study unearths a problem in a particular area, talk to the person in charge of that area before your report is released. At the very least you will have forewarned the supervisor. More likely you will gain some insights that help explain your findings and possibly change your recommendation. The supervisor may tell you he or she is aware of the problem and is delighted to see support from you for resources to help address it.

- If some of your conclusions or recommendations are very sensitive (if, for example, you identify evidence of sex discrimination in a particular department), omit the most sensitive details from your written report and instead discuss them in person with those who should be aware of the problem. Remember that your study only provides allegations of a problem, not proof of it.

3. Suggestions for further research. Any good study raises more questions than it answers. Note if you are planning on studying these issues further. You may have some ideas for someone else who would be interested in conducting further research. I call this section "Looking Ahead" and it's a nice way to end the report.

HOW ELSE CAN YOU KEEP YOUR REPORT INTERESTING AND READABLE?

This is not a journal article. While your readers are probably intelligent and well-educated, chances are they are not familiar with research methodology, statistics, or the subject of your study. Even if they are, they probably don't have time to study a scholarly missive. Here are some suggestions for ways to improve the readability of your report.

Use plenty of headings, so busy executives can scan your report and read only what interests them.

Keep your sentences and paragraphs short. If one sentence runs six or eight lines or one paragraph fills most of a page, your report is too difficult to read.

Avoid research jargon such as "variable," "subject," or "population." Keep your writing simple, clear, and in layperson's terms. It is possible, for example, to explain the results of regression analysis without ever using the term "regression". Avoid statistical symbols; write "standard deviation" instead of "s", for example.

Spell out abbreviations at least the first time they are used, even if they are widely understood on your campus. Also spell out any numbers under 13.

Minimize citations. Since this is not a scholarly paper, you need not include full citations, although you should of course explain in some less formal way the sources of any ideas that are not your own. You probably do not need to include a reference list or bibliography; anyone who would like a complete citation can contact you.

As a final check for readability, have a friend outside your field read your report. Even if he or she knows no statistics, your friend should be able to follow the purpose of your study, your basic findings, and your conclusions and why you drew them.

These suggestions are not meant to imply that your report should have a casual tone. Your challenge is to keep it clear and simple while maintaining its dignity. Avoid slang, contractions, and undignified expressions ("really interesting"). Avoid writing in first person ("I", "we") or second person ("you"), although writing in the first person is increasingly acceptable if it streamlines and clarifies your report.

Postscript

REACTING TO OTHER SURVEYS

Although the focus of this monograph has been on conducting your own survey, I hope that you will keep the points made here in mind when you are asked to complete other questionnaires or when you read reports on other surveys. A lot of surveys, both good and bad, are being done these days. We have a responsibility to support good surveys. Return the favors your respondents did for you by answering any good questionnaires you receive.

We have a similar responsibility to contravene bad surveys. Bad surveys hurt us. Past frustrations with them is one of the reasons that potential respondents refuse to help us. Bad surveys also waste the time we spend attempting to complete them, since the information gathered will be largely useless.

By refusing to cooperate with bad surveys, we not only stop wasting our time but may also contribute to a very low overall response rate. Perhaps that will make the researcher and his or her readers think twice about using the results or about conducting similar surveys in the future.

If you would like to discourage poor survey research, toss any questionnaire with any of the following characteristics right in the trash.

1. No indication of who is sponsoring the survey.

2. No explanation of how the results will be used.

3. No guarantee of confidentiality.

4. No clear definitions of ambiguous terms. (I once received a survey asking for "faculty workload" data. How many different definitions must that have!) The person conducting the survey will end up with apples-and-oranges data that's useless.

5. No postage-paid envelope in which to return the survey.

6. A multi-page survey that will take a lot of time to complete (searching through files, calling other offices), unless the use it will be put to clearly justifies the time.

7. Any obviously biased or loaded questions. This includes requests for factual data that will obviously support only one side of an issue.

We also have an obligation to critically review any reports on surveys before reacting to them or taking actions based on them. The Canadian Daily Newspaper Publishers Association has published a "journalist's checklist" to evaluate polls. Much of it is applicable to other survey reports. Any report you read should include the following:

1. Who sponsored the survey? If someone with a vested interest in the results was the sponsor, the survey may be biased by biased questions, a biased sample, or a selective disclosure of the results.

2. When was the survey conducted? Has anything happened in the interim that might change results if the survey were repeated today?

3. How were the persons polled selected? What evidence is there that they are an unbiased sample of the desired population?

4. How many persons responded?

5. What was the response rate?

6. What were the questions? Small differences in wording can produce large differences in responses. The questions that produced the results should be quoted exactly.

7. What is the error margin?

8. Does the executive summary of the report accurately reflect the results? The temptation to oversimplify or overreach the meaning is great.

I once worked for a short time as a radio announcer. When I was learning the ins and outs of radio, someone remarked to me, "Now that you know what we do, you'll never listen to radio the same way again." He was right; I will never again be able to listen as idly (or ignorantly) as I once did. I cannot help but be sensitive to what the announcer says, the "rotation" of the songs played, even the content and length of the commercials.

The story applies to survey research. Now that you know how to conduct a good survey, I hope you will never react in the same way to anyone else's questionnaire or report. Even if you never write another questionnaire yourself, our time will not have been wasted.

Complete?	Task	Start date	Time needed	Deadline
_____	Plan Survey.		2 weeks	
_____	Review what others have done.		2 weeks	
_____	Write questionnaire and cover letter.		1 week	
_____	Pilot test questionnaire.		1 week	
_____	Design data analysis.		1 day	
_____	Arrange for data entry.		--	
_____	Write data analysis computer software.		1 week	
_____	Obtain mailing labels.		1 week	
_____	Select sample.		2 days	
_____	Collect additional data as needed.		2 weeks	
_____	Type and duplicate questionnaires, cover letters, and return envelopes.		2 weeks	
_____	Stuff envelopes for first mailing and mail.		2-3 days	
_____	Wait for returns.		2-3 weeks	
_____	Prepare follow-up mailing and mail.		2-3 days	
_____	Wait for returns.		2-3 days	
_____	Edit responses and begin data entry.		1-3 weeks	
_____	Analyze data.		2-3 days	
_____	Write report.		1 week	
_____	Have report typed and distributed.		1 week	

Note. These items need not be completed sequentially. For example, the data analysis can be designed and the mailing labels ordered while the questionnaires are being printed. Additional data can be collected while you are waiting for the questionnaires to be returned.

Appendix 2.

EXAMPLES OF QUESTIONNAIRES

This appendix includes the following examples of questionnaires, all written by the author. References to specific institutions have been deleted.

"Survey of Student Goals and Satisfaction"

"Summer Orientation Program Student Evaluation"

"Survey of Alumni Satisfaction, Activities, and Goals"

"Office of Institutional Studies User Survey"

OFFICE OF THE PRESIDENT

A_____ UNIVERSITY

SURVEY OF STUDENT GOALS AND SATISFACTION

Unless otherwise requested, check the ONE best response of each item. If you want to explain your answers further, use the space at the end of the questionnaire or attach another piece of paper.

1. What is your goal here at A_____ University?

_____ To finish a degree here.
_____ To prepare to transfer to another college before finishing a degree here.
(What other college? _____)
_____ At this time I'm not sure about my goal here.
_____ Other (Please specify _____)

2. How would you describe A_____ to a friend back home?
Check the part of each line that best shows your feelings.

Beautiful campus	___ ___ ___ ___ ___	Unattractive campus
Too expensive	___ ___ ___ ___ ___	Reasonably priced
Good academic reputation	___ ___ ___ ___ ___	Weak academic reputation
Good location	___ ___ ___ ___ ___	Poor location
Too big	___ ___ ___ ___ ___	Too small
Good financial aid	___ ___ ___ ___ ___	Little financial aid
Too close to home	___ ___ ___ ___ ___	Too far from home

3. How would you describe A_____'s courses to a friend back home?
Check the part of each line that best shows your feelings about the courses here in general.

Interesting	___ ___ ___ ___ ___	Boring
Usually closed	___ ___ ___ ___ ___	East to get into
Conveniently scheduled	___ ___ ___ ___ ___	Inconveniently scheduled
Wide variety	___ ___ ___ ___ ___	Small selection
Easy	___ ___ ___ ___ ___	Hard
Intellectually challenging	___ ___ ___ ___ ___	Mostly busy work

4. How would you describe A_____'s faculty to a friend back home?
Check the part of each line that best shows your feelings about the faculty here in general.

Cold and remote	___ ___ ___ ___ ___	Friendly
Always available	___ ___ ___ ___ ___	Hard to find
Hard to talk to	___ ___ ___ ___ ___	Easy to talk to
Willing to help	___ ___ ___ ___ ___	Unwilling to help
Hard to understand	___ ___ ___ ___ ___	Easy to understand
Enthusiastic	___ ___ ___ ___ ___	"Burned out"

PLEASE CONTINUE ON OTHER SIDE. . .

5. How would you describe your academic advisor to a friend back home? Check the part of each line that best shows your feelings.

Always available	___ ___ ___ ___ ___	Hard to find
Hard to talk to	___ ___ ___ ___ ___	Easy to talk to
Willing to help	___ ___ ___ ___ ___	Unwilling to help
Cold and remote	___ ___ ___ ___ ___	Friendly
Gives good advice	___ ___ ___ ___ ___	Gives poor advice

6. How would you describe your social life at A_____ to a friend back home? Check the part of each line that best shows your feelings.

Nothing to do	___ ___ ___ ___ ___	Lots to do
Hard to make friends	___ ___ ___ ___ ___	Easy to make friends
Good athletics programs	___ ___ ___ ___ ___	Weak athletics programs
Poor facilities	___ ___ ___ ___ ___	Good facilities

7. Below are listed some opinions that students sometimes express about college. Check all the statements that reflect your feelings.

_____ A_____ University is a prestigious name in my community.
_____ The program I'd like to major in here is not as good as I'd like.
_____ The program I'd like to major in is too hard here.
_____ I want to major in a program not offered here (What program? _____)
_____ I'm pretty good friends with a faculty member here.
_____ I may have to leave A_____ because my grades aren't high enough.
_____ I'm running into more financial problems than I expected when I came here.
_____ I'd like to take a break from college for a year or so.
_____ I have a hard time finding computer terminals available.
_____ None of these statements applies to me.

8. What do you plan to major in? _____

9. What one thing do you like best about A_____ University? Be specific!

10. What one thing about A_____ University most needs improvement? Be specific!

_____

Thank you very much for your help. Please return this questionnaire in the addressed, postage-paid envelope provided.

Today's date_____
Your guide's name_____
Your intended major_____

A_____ University
SUMMER ORIENTATION PROGRAM
STUDENT EVALUATION

We would like to know how successful the orientation program has been in familiarizing you with life at A_____ University. How worthwhile was each part of the orientation program? For each question, please check the space that best reflects your opinion. If you'd like to make any additional comments, please use the space at the end of this form. Thank you very much for your help.

How worthwhile was each of the following programs or presentations in acquainting you with A_____ and preparing you to attend here?

Program/presentation	Very Worthwhile	Somewhat Worthwhile	Not Worthwhile	Did Not Attend
First Day				
1. Welcomes from Orientation Committee and University administration	___	___	___	___
2. Placement and proficiency testing	___	___	___	___
3. Campus tour	___	___	___	___
4. "Somebody Else's Problem"	___	___	___	___
5. Intramurals	___	___	___	___
6. Resident Life	___	___	___	___
7. Commuter Life	___	___	___	___
8. Parent's Club (evening)	___	___	___	___
9. Student Guide and Video (evening)	___	___	___	___
10. Awareness workshop (evening)	___	___	___	___
11. Evening entertainment	___	___	___	___
Second Day				
12. Undecided/undeclared students	___	___	___	___
13. ROTC	___	___	___	___
14. Financial Aid	___	___	___	___
15. Library	___	___	___	___
16. Administrative Services	___	___	___	___
17. Student Affairs	___	___	___	___
18. Pre-registration academic advisement	___	___	___	___
19. Registration	___	___	___	___

For each of the following statements, please mark the space that best matches your feelings.

		Strongly Agree	Agree	Disagree	Strongly Disagree
20.	The check-in process went smoothly.	____	____	____	____
21.	My guide was knowledgeable.	____	____	____	____
22.	My guide was friendly.	____	____	____	____
23.	My guide was helpful.	____	____	____	____
24.	The food was good.	____	____	____	____
25.	The residence hall accommodations were clean and comfortable.	____	____	____	____
26.	The academic advisor I saw before registration was helpful.	____	____	____	____
27.	The registration process went smoothly.	____	____	____	____
28.	Overall, the presentations were easy to understand.	____	____	____	____
29.	Overall, the presentations were interesting.	____	____	____	____
30.	Overall, the people I met were helpful.	____	____	____	____
31.	Overall, these two days have been worthwhile.	____	____	____	____

32. What was the <u>one</u> <u>best</u> part of the entire program? _____

_____

_____

33. What <u>one</u> part of the program <u>most</u> needs improvement? _____

_____

_____

<u>How</u> does it need improvement? Be specific! _____

_____

_____

Additional comments:

Thank you very much for your help! Please place this form in the box at the front of the room before you leave.

Office of Institutional Research
B_____ College

Survey of Alumni Satisfaction, Activities, & Goals

Unless otherwise requested, check the ONE best response to each item. If you want to explain your answers further, use the space at the end of the questionnaire or attach another piece of paper.

1. If you could start over again, would you still go to college?
   ___ Yes, and I'd go to B_____ .
   ___ Yes, but I'd go somehwere else (Where? _____)
   ___ No.

2. How much did your education at B_____ contribute to your growth in your ability to:

	Very much	Somewhat	A little	Not at all
Define problems	___	___	___	___
Use a typical adacemic library	___	___	___	___
Understand others' ideas through reading	___	___	___	___
Understand other's ideas through listening	___	___	___	___
Appreciate how various fields of study are interrelated	___	___	___	___
Distinguish fact from opinion	___	___	___	___
Understand and appreciate different viewpoints on a given topic	___	___	___	___
Understand and apply scientific principles and methods	___	___	___	___
Use widely-accepted research techniques	___	___	___	___
Evaluate alternative solutions to a problem	___	___	___	___
Organize your ideas	___	___	___	___
Effectively explain your ideas orally	___	___	___	___
Effectively explain your ideas in writing	___	___	___	___
Perform basic computations	___	___	___	___
Appreciate the diversity of American culture	___	___	___	___
Appreciate other cultures	___	___	___	___

3. Since you graduated from B_____, have you participated in any of these activities ON YOUR OWN, NOT AS PART OF YOUR WORK OR SCHOOL ASSIGNMENTS? Check as many as apply.
   ____ Browsed in a bookstore
   ____ Had a library card
   ____ Worked on a crossword or similar kind of puzzle
   ____ Discussed a national or world news event with friends
   ____ Attended an art museum or exhibit
   ____ Read an article on scientific advances
   ____ Attended a play or opera
   ____ Set up a family budget
   ____ Read a book dealing with a social or political issue
   ____ Completed income tax forms on your own
   ____ Read a "classic" literary work
   ____ Attended a scientific exhibit

PLEASE CONTINUE ON OTHER SIDE. . .

4. About how many hours per week do you read for leisure?
   ____ hours per week

5. If you are presently employed, which of these do you need to do your job well? Check as many as apply.
   ____ I am not presently employed.
   ____ Familiarity with methods of problem definition and solution
   ____ Skill in critical thinking
   ____ Ability to synthesize or merge knowledge from several sources
   ____ Proficiency in your major field of study
   ____ Acquaintance with other fields of study
   Basic skills in:
   ____ Reading
   ____ Writing
   ____ Speaking
   ____ Computation

6. Have you ever applied for admissions to one or more graduate degree programs?
   ____ Yes, and I was accepted into at least one program.
   ____ Yes, but I was never accepted.
   ____ Yes, but I haven't heard from them yet.
   ____ No.

7. What are the highest degrees beyond a Bachelor's that you've completed and that you plan to complete someday?

Have Completed	Plan to to Complete	
____	____	None beyond a Bachelor's
____	____	Master's
____	____	Doctorate (Ph.D., Ed.D., etc.)
____	____	Professional degree (i.e., doctorate in medicine, law, or theology)
____	____	Other (Please specify _____)
____	____	I'm not sure.

8. Have you taken or do you plan to take any non-degree courses since graduating from B_____? Check all that apply.

	Have taken	Haven't taken but plan to
Adult education (non-credit)	____	____
Continuing Education (earning C.E.U. Credits)	____	____
College credit courses required to keep/advance my position at work	____	____
College credit courses for leisure	____	____

9. Based on your experience with B_____, what one thing about it most needs improvement? Be specific! _____

_____

Thank you again for your help. Please return this questionnaire in the enclosed postage-paid envelope.

OFFICE OF INSTITUTIONAL STUDIES

USER SURVEY

The Office of Institutional Studies is evaluating its services. We would appreciate your help by filling out this form. Check the appropriate responses to each item. Feel free to elaborate or comment on any answer. Please return this form to this office by October 27, 19__.

1. Please check the frequency with which you use the services of Institutional Studies.

	Very rarely or never	About once a term	About once a month	Once a week or more
I receive "regularized" reports	____	____	____	____
I request oral reports or information	____	____	____	____
I request written ad-hoc reports or studies	____	____	____	____
I request consultant services (in DBMS, statistics, research methodology, etc.)	____	____	____	____
Other _____	____	____	____	____

2. Please check the quality of the services you used in terms of:

	Excellent	Good	Adequate	Needs Improvement
Accuracy	____	____	____	____
Comprehensiveness	____	____	____	____
Clarity/readability	____	____	____	____
Timeliness	____	____	____	____
Usefulness/value	____	____	____	____
Overall quality of services	____	____	____	____

3. Please check the quality of the staff in terms of:

	Excellent	Good	Adequate	Needs Improvement
Knowledge	____	____	____	____
Communication ability	____	____	____	____
Helpfulness	____	____	____	____
Courtesy	____	____	____	____
Overall quality of staff	____	____	____	____

4. Additional Comments:

Appendix 3.

EXAMPLE OF A COVER LETTER

This appendix is an example of a cover letter, written by the author. References to a specific institution have been deleted.

[Letterhead Paper]

Date

Dear Student:

_____ University is committed to providing you with quality educational opportunities. One way to see if we are meeting our goals is to ask you how satisfied you are with _____'s various programs and features. Your input is very important in deciding what actions to take better to serve students who attend _____ and those who plan to come.

Your thoughts are particularly important in these critical times of budget cutbacks and uncertainties. Sharing your opinions and perceptions with us is perhaps the most valuable contribution you can make toward helping us address these problems and take action to solve them.

You are one of a small sample of students that was randomly selected to respond to a few questions on your goals and your satisfaction with _____. The small sample makes your response critical to the value of this study.

Would you please take a few minutes to complete the enclosed questionnaire? An addressed envelope (postage-paid if you live off campus) is included for you to return it. The number on the questionnaire will be used to contact and remind those not returning the questionnaire. Your name, of course, will never be connected with your individual answers.

If you have any questions about this study or if you would like a copy of the final report on it, please contact [name, title, address, telephone.]

Thank you for your help.

Sincerely,

[Name]
President

Enc.

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